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A Self-Aligning Method of Treating Fractures of the Long Bones*

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SEATTLE, WASHINGTON

THE displacing force of muscles has long been accepted as the main obstacle to reduction, and past methods of fracture treatment have been based on means of combating this muscle pull. However, when the muscles are not treated as hostile forces but utilized as friendly agents, they provide the basis for a self-aligning technic. The requisite for converting muscles and fasciae into coöperating agents is a form of skeletal traction and skeletal countertraction in line with the axis of the fractured bone which permits free movement of the fragments while under traction.

TRACTION AND COUNTERTRACTION

It has been recognized that adequate traction will overcome shortening, and of late it has been generally accepted that the best means of obtaining such traction is by skeletal transfixation. However, in evaluating traction, consideration must be given to the fact that traction is no more effectual than its countertraction. Our experience has demonstrated that the most efficient form of countertraction is that obtained by dual skeletal transfixation of the superior fragment, and to be most effective the traction-countertraction pull must be in line with the axis of the fractured bone.

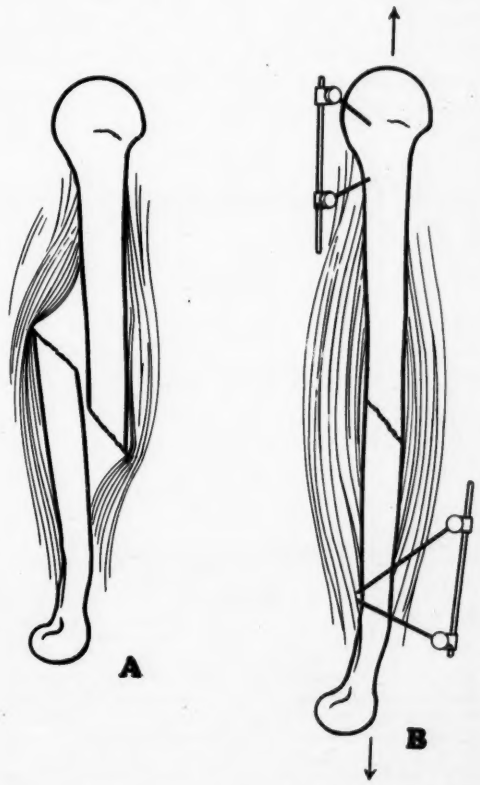


Fig. 1. When traction is exerted in the longitudinal axis of the fragments with countertraction applied directly to the upper fragment, it will correct both the shortening and the general alignment. (For clarity only muscles on anterior and posterior sides of humerus are illustrated.)

*Presented at the Fourth International Assembly of the International College of Surgeons, New York City, June, 1943.

While the combined force of competent skeletal traction and countertraction will reëstablish length, it cannot in itself effect reduction. But if the traction force is applied in such a manner that the fragments are free to move while under traction, the muscles and fasciae will virtually cause a self-alignment of the fragments. Such realignment occurs because the fragments are literally enveloped in a tube of soft tissues, consisting of varying degrees of elastic muscles, flexible fasciae, and pliable soft tissue such as skin and blood vessels. When the traction and countertraction force is exerted in the longitudinal axis the sides of the resilient tube are tightened, molding the fragments into a straight line.

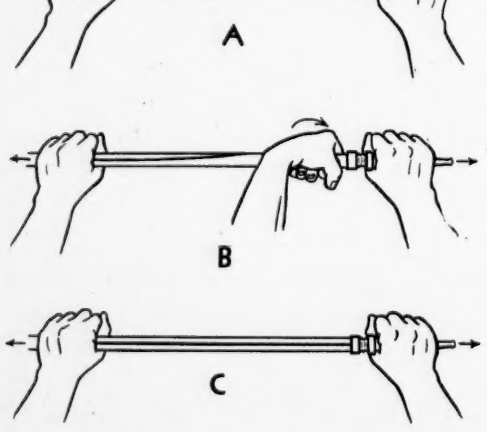


Fig. 2. A. Correction of rotational displacement by an untwisting action can be demonstrated by partially screwing on the nozzle of a rubber garden hose and then exerting traction by grasping the nozzle with one hand and pulling in the axis of the hose, while the other hand pulls in the opposite direction for countertraction. B. With the same amount of traction maintained, a second person twists the end of the hose close to the nozzle. C. Note that while the same amount of traction is being exerted, when the twisting grasp is released the hose, being elastic, will twist back into the original position. This is made possible because the hose is free to rotate at the nozzle.

ROTATION

The overcoming of shortening and the correction of angulation are but steps in reduction since there can be no reduction until there has been full correction of rotational displacements.

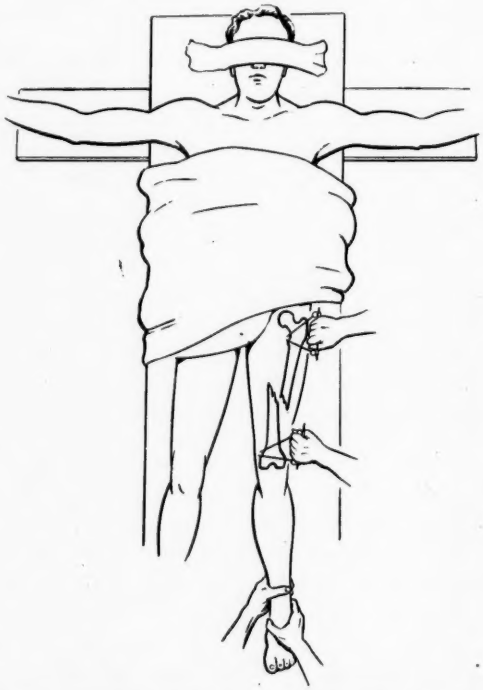


Fig. 3. Manual traction and countertraction, supplemented by manual manipulation of the fragments, is the simplest way of obtaining reduction.

The necessity of correcting a rotational deformity, if a poor functional result is to be avoided, has been stressed by Paul Magnuson and others for many years. Fortunately, anatomic rotational apposition can be readily achieved, provided the superior fragment is rotated and held in the normal position with the distal fragment free to rotate under traction that is in line with the longitudinal axis of the bone.

The explanation of this self-correction lies in the fact that a malrotation

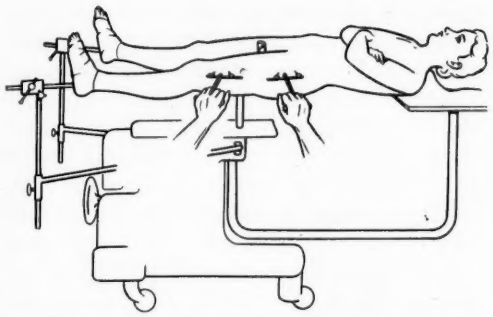


Fig. 4. Reduction by these principles can be achieved on any standard fracture table, provided the distal fragment is rotated and manipulated back into its normal position, and that after traction in the long axis of the distal fragment has been applied, reduction is completed by manually manipulating the superior fragment into contact with the distal face.

will cause a twisting effect on the tube of elastic soft tissues around the fracture site, with a resulting increased tension on the tube. This increased tension will cause the tube to "untwist" itself and return to the position of least tension, that of apposition, provided the distal fragment is left free to rotate as traction is being exerted.

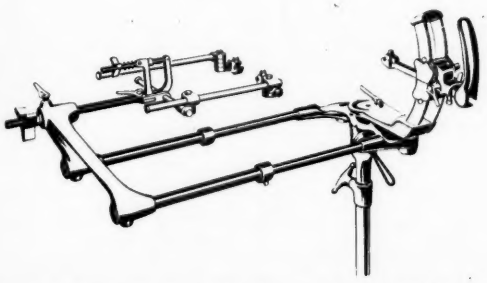


Fig. 5. Perfection of reduction can best be achieved by use of the free-rotating, self-aligning apparatus. Skeletal countertraction to the superior fragment is in line with the long axis of the fragment, leaving it free to move in both sidewise and vertical directions as traction is applied. The rotatory displacement of the superior fragment is first mechanically corrected and held in the normal or mid position of rotation. The distal fragment is so held in the splint that even under traction this fragment can move easily in sidewise and vertical directions and also can be freely rotated upon the normal anatomic axis. This inherent ability of the fragments to freely move while the traction-countertraction force is being exerted permits the resilient tube of muscles, fascia, and soft tissue to mold the fragments into alignment. Moreover, if indicated, each fragment may be manually manipulated and then mechanically held in any desired position.

REDUCTION

Traction force for reduction can be obtained in one of the following ways, as illustrated below: (1) manual; (2) fracture table; (3) self-aligning apparatus.

IMMOBILIZATION

After a reduction has been obtained, positive fixation is obviously imperative. A practical and direct means of fixation is achieved by utilizing the transfixions that were previously placed in each fragment for reduction purposes. Positive immobilization can be maintained by joining these two sets of V-trans-

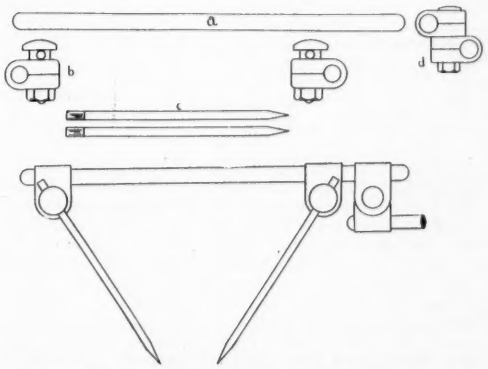


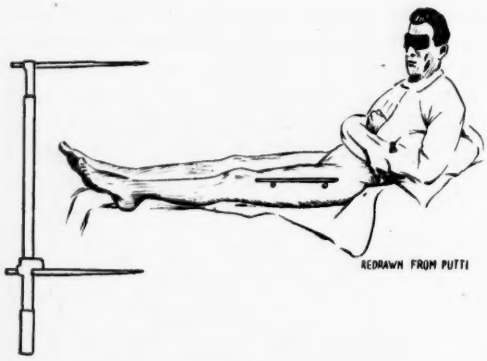
Fig. 6. For castless immobilization a positive means of fixation can be fabricated in the desired shape and size to fit the individual patient. A. Round rod used for fracture rod or for fixation rod. B. Single pin-clamp. C. Steinmann pins or wires. D. Double rod-clamp. Lower figure shows how from these pins, inserted at an angle to each other, a fracture unit is fabricated. Immobilization is secured by joining the superior and distal fracture units with a fixation rod. In compound fractures, if desired, a combination of plaster and rods may be used.

fixions in one of the following ways: (1) incorporating transfixions in a plaster splint or circular cast; (2) connecting pins with external rod or square tube; (3) combining plaster and rod

technics (especially applicable for compound fractures).

When transfixions are incorporated, the plaster-of-Paris splint or cast need extend only the length of the fractured bone, leaving, in the case of a femur, both the knee and hip joints free to move. Drawbacks to plaster for simple fractures are the time it takes to apply and set up, the fact that it absorbs moisture, and that it is heavier and more cumbersome than the rod. Absorption at the ends of the bones in transverse fractures frequently calls for reimpacting the fragments. With plaster this takes a little longer, but can be easily accomplished by cutting and removing a thin, circular segment, like a piston ring, from over the site of the fracture.

The smooth rod supplies the most simple fixation means. Its advantage lies in quick application and ease of reëstablishing contact if absorption should occur, as in transverse fractures. The device is light, the rod, pins and clamps for a fractured femur weighing as little as twelve ounces. In spite of their lightness, they are sturdy enough to hold the fracture. After reduction has been obtained, the rod can be applied in a few minutes' time and the



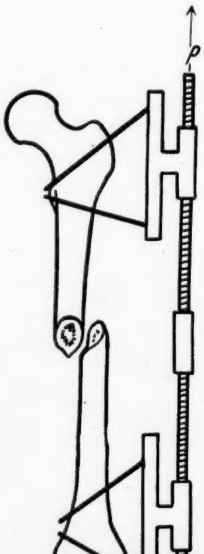


Fig. 7. A. In 1921 Putti reported in America on the use of his external traction rod, illustrated above. The first report ever made on the reduction and immobilization of fractures by the angular placement of two half-pins into each fragment was presented by the author before the American Academy of Orthopedic Surgeons in January, 1935. With the later method the patient could become ambulatory immediately. For instance, a patient with a fracture of the femur was able to get up and walk on crutches and move his hip and knee joints. In spite of the publication of these papers in the official journals of the American medical societies, some authors, through the lay and medical press, are leading the public to believe that this technic is a recent contribution of their own. B. An examination of this reported "new discovery" reveals it to be just a combination of Putti's fracture turnbuckle and the Roger Anderson half-pins. With this combination the threaded rod supplies traction, and the half-pins supply handles to manipulate and hold the fragments, but this combination cannot be used for rotation. In fact it prohibits any attempt to correct rotational deformity. Therefore, it cannot be used as a reduction splint. Indiscriminate use as advocated for a reduction splint can only lead to disaster. Moreover, as the fragments are not free to rotate or move on their axis while traction is being applied, the muscles are prohibited from effecting reduction. Furthermore, since the traction force is not exerted in line with the axis of the bone but to the lateral side, the more traction applied the more the tendency to angulation.

patient can be transported with safety. Moreover, as soon as he recovers from the anesthetic, he may be fully dressed and up on crutches. The whole field is always exposed for physical and radiographic examination.

TYPES OF FRACTURES

Although this technic was originated for fractures of the shaft, with some minor alterations it may be applied to all fractures of the long bones, whether they are transverse, spiral, oblique, comminuted or compound. This method also controls the troublesome fractures that extend into elbow, wrist and knee joints, os calcis fractures, and fracture-dislocations of the ankle. Furthermore, any type of transfixions, Steinmann through-and-through pins, Kirschner wires, or Roger Anderson half-pins, can be employed equally well and can be inserted from either side, at the desired angle, and any distance apart.

ELECTROLYSIS

Insertion of two pins into each fragment has raised the question of electrolysis. This question can be quickly dismissed by a review of high school chemistry. To have a battery action it is necessary for the two electrodes to be of dissimilar metals, as reported by Stuck and Venable. An explanation of this action is diagrammed below.

SPECIFIC FRACTURES

While these aligning principles of treatment apply to all shaft fractures, there are a few that call for additional consideration. As a general rule with *fractures in the upper third of the shaft* it is best not only to rotate the superior fragment back into normal position but to bring it back into the normal axis of the limb and hold it there before applying traction. In *fractures in the center portion of the shaft,* only the rotational displacements of the superior fragment need be corrected before traction is applied, leaving the end of this superior fragment free to move in a vertical and in a sidewise direction. A maneuver that may be performed before traction is exerted is a manual manipulation of the ends of both fragments into a medial and then into anterior angulation, after which with a posterior downward pres-

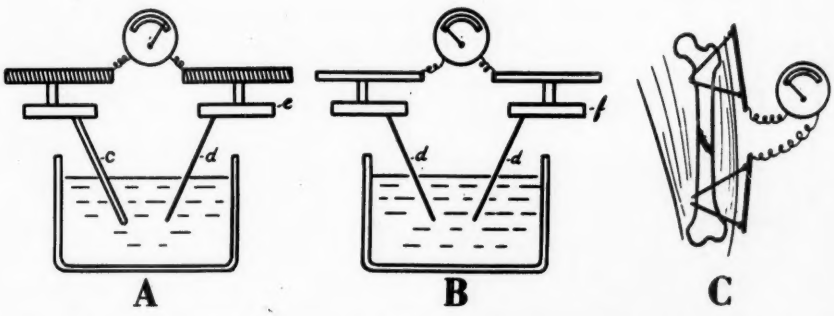


Fig. 8. A. Electric activity can only be generated in a battery when the electrodes are of different metals. In the above illustration the electrodes *c* and *d* are of dissimilar metals and current is registered on the galvanometer. B. In this illustration the two electrodes, *d* and *d*, are of the same metal so battery action cannot take place, galvanometer does not register, and there is no electrolysis. C. As the half-pins (electrodes) in the fragments are of the same metal there is no electrolysis. Therefore, as no current can be generated, there is no need to use plastic non-conducting pin holders or to give electrolysis clinical consideration.

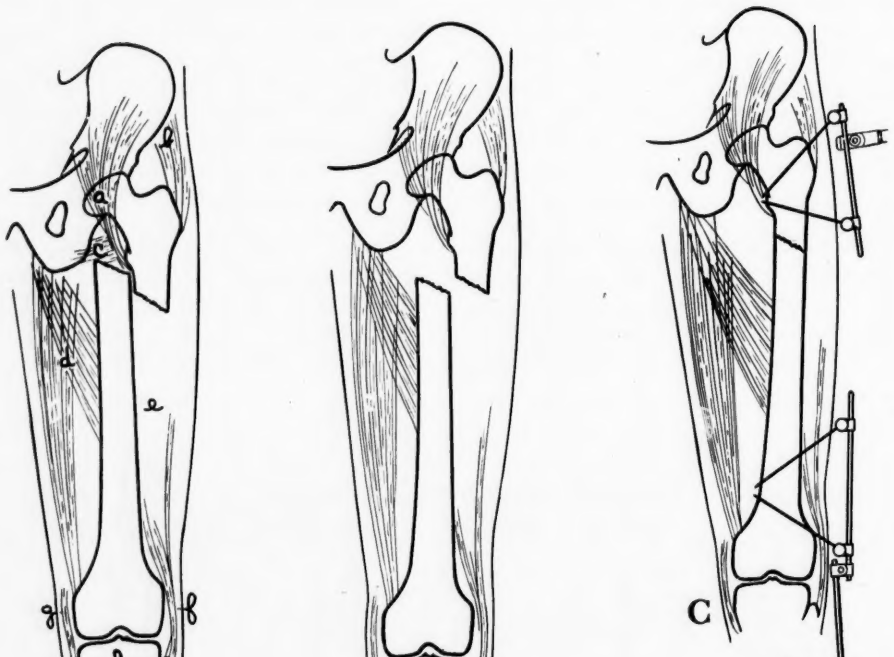


Fig. 9. A. In high femoral shaft fractures there is a relatively small amount of longitudinal muscle sheath directly around the fracture site in comparison to the large group of muscles having their origin in the pelvis and their insertion in the lower extremity. B. While the usual traction, if sufficient, can overcome the shortening, apposition will not be accomplished. C. However, apposition can be achieved by using the V-transfixation to rotate and to bring the upper fragment back into its normal position, and to hold it there. Then after axial traction has been applied, the superior end of the distal fragment is manually brought laterally back in line and reduction is achieved by the free rotating movement of the distal fragment.

sure the fragments are forced into the normal position as traction is being exerted.

A *subtrochanteric fracture,* recognized as a stubborn fracture to manage because of the unusual muscle pull, can be controlled when these principles are employed, provided the superior fragment is first brought back into normal position and that, after traction has been exerted, the superior end of the distal fragment is brought back to the midline and fastened there.

Other fractures that have caused a good deal of difficulty are the *supracondylar* and the *femoral T-fractures into the knee joint.* Past methods of treating these fractures with the knee in flexion have helped to overcome the posterior displacement of the distal fragment, but this position of flexion prevented rotation of the distal fragment, as illustrated below. However, with the self-aligning technic, reduction is routinely effected with more ease if the knee is kept in extension.

Compound fractures: A combination of V-transfixation, fixation rods, and

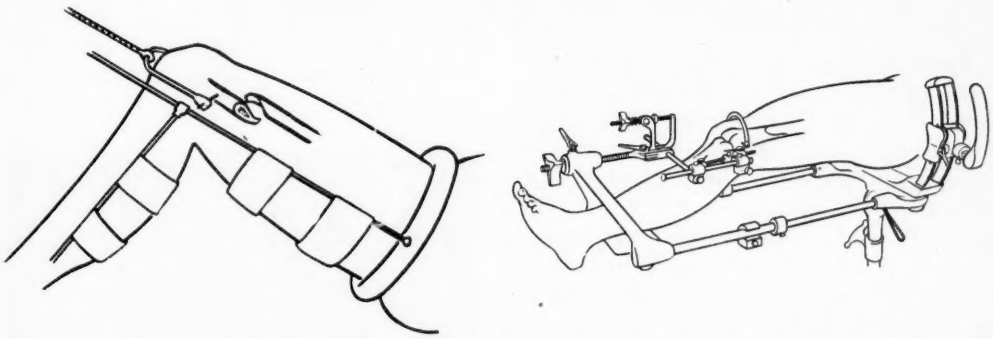


Fig. 10. A. In this spiral fracture of the distal third, traction as usually employed has overcome the shortening, but the rotational displacement still persists. No amount of lateral pressure or sidewise manipulation, or increase of the traction force, can effect a reduction. With the lower leg in flexion, position literally freezes the distal fragment, preventing rotation. B. But with this technic, control through dual transfixation corrects the posterior displacement of the distal fragment. Therefore, the knee will not need to be in flexion but can be kept extended. This position permits the distal fragment to rotate freely. Thus opposition can be easily obtained through unrestricted operation of the self-aligning principles.

plaster supplies a practicable approach for the treatment of compound fractures. All the advantages of Orr's method or Trueta's modification are utilized and their disadvantages are minimized. As the plaster becomes saturated and odorous, the cast can be removed and discarded with or without disturbing the original compound wound. This change of plaster can be done with safety as often as is indicated since the rod and the transfixions will securely hold the fragments in alignment until consolidation is complete. Meanwhile, the patient may be ambulatory and at an early date the contiguous joints may be exposed and thereafter moved with safety.

Fig. 11. Lateral X-rays before reduction of E. C., graduate nurse. Airplane accident resulted in fractures of shafts of both femorae, complicated by intracapsular fracture of left patella.

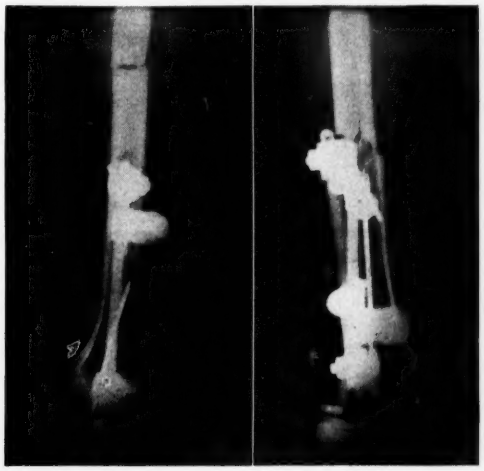


Fig. 12. Lateral X-rays after reduction (5/31/43).

SUMMARY

Reduction can be accomplished with more ease and less danger when muscle pulls and fascial tensions are intelligently directed rather than vigorously combatted, provided the following two requisites are employed. First, skeletal traction and skeletal countertraction must be exerted in the longitudinal axis of the fractured bone, and second, one or both fragments should be free to move while traction is being exerted.

RÉSUMÉ

La réduction des fractures des os longs s'accomplit plus facilement et avec moins de dangers si les tractions musculaires et les tensions fasciales sont dirigées intelligemment plutôt que combattues vigoureusement. Il faut premièrement que la traction sequelettale soient exercées dans l'axe longitudinal de l'os fracturé; et secondement, que l'un ou les deux fragments soient mobilisables pendant que l'os est soumis à la traction et à la contra-traction.

SUMARIO

La reducción de fracturas de los huesos largos puede ser efectuada con mayor facilidad y menos riesgos cuando la tracción muscular y la tensión de la fascia son intelligentemente ejecutadas que empleando fuerza vigorosa, con tal que se sigan los requisitos siguientes: 1° Traccion esqueletal y traccion contra-esqueletal debe ser aplicada en le eje o axes longitudinal del hueso quebrado; y 2° uno o ambos fragmentos deben ser mobiles durante la acción de tracción y contratracción.

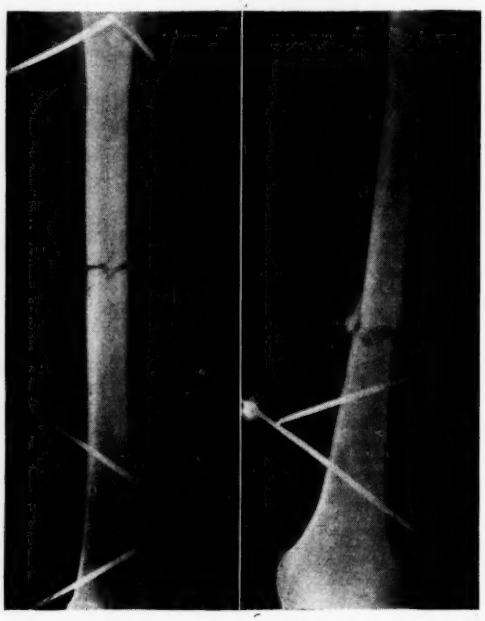


Fig. 13. A.P. X-rays after reduction (5/31/43).

Выводы

Вправливание переломов длинных костей делается легче и с уменьшением опасности, если напряжение мускулов и сухожилий употребляетсч целесообразно. Это возможно при соблюдении двух условий. Во-первых, скелетная вытяжка должна идти по продольной оси переломанной кости; во вторых, один или оба осколка должны свободны в то время, когда производится вытяжка.

THIS IS YOUR COUNTRY TO HAVE AND TO HOLD

KEEP HER FOREVER SAFE AND STRONG

BUY MORE AND MORE WAR BONDS AND STAMPS

Surgical Treatment of Tuberculous and Malignant Diseases of the Respiratory System

CHAS. M. GRIFFITH, M.D.*
WASHINGTON, D. C.

IN our program of treatment of tuberculosis, surgical collapse in some form plays an important rôle. We utilize chest surgery as a supplement to the expectant treatment which, after a reasonable trial, has failed or, in the light of experience, is destined to fail to reëstablish a resistance balance against the disease.

With our patients able to "take the cure" for many months without cost to themselves, a more conservative approach to collapse therapy is practiced than were we confronted, like many state and municipal sanatoria, with a waiting list that demands a more rapid "turnover." We do not temporize with rest until the need for thoracic surgery becomes urgent, but after a meticulous study of the evolution and present status of the lungs is concluded, the surgical procedure most effective for the given stage is selected. Usually revocable measures in ascending grades of severity are employed, giving each procedure a reasonable period to prove its capacity to control the lesion.

In 1935 a "Surgical Collapse Board" was set up at each of the tuberculosis centers and at those general hospitals having tuberculosis departments. The Board consisted of five members: the clinical director, tuberculosis specialist, chest surgeon, roentgenologist and the ward physician in charge of the patient. The function of this board has been to study each tuberculous patient on admission, and at three months' intervals thereafter, for the purpose of deciding whether or not the patient should continue to receive passive treatment or, in the presence of appropriate indication, surgical collapse therapy. These boards are the modus operandi for insuring intensive treatment of the tuberculous process of each individual patient.

In addition, several chest surgery centers have been established at the following locations: Castle Point, New York; Oteen, North Carolina; Legion, Texas; Tucson, Arizona; San Fernando, California; Livermore, California; Portland, Oregon; Washington, D. C.; and Hines, Illinois. In the majority of these centers outstanding internationally known consultant chest surgeons are available for consultation and the actual operative surgery. At San Fernando, California, we are conducting a training course in thoracic surgery to which several of our general surgeons are assigned for intensive work in this type of collapse therapy. At a few of the chest surgery centers (notably, Oteen, North Carolina; Tucson, Arizona; Legion, Texas; San Fernando,

*Medical Director, Medical and Hospital Service, Veterans Administration.

California; and Portland, Oregon) exceptionally well trained full-time chest surgeons are performing major chest surgery. Several of our younger full-time physicians resident at our chest surgery centers are being meticulously tutored for the purpose of acquiring proficiency in major thoracic surgery.

At all of our institutions treating tuberculous patients, the full-time surgeons and phthisiologists are competent to perform and are performing minor surgical collapse therapy, including the induction of pneumothorax, pneumoperitoneum and interruption of the phrenic nerve either by exeresis or clasia.

Patients in those institutions where major chest surgery is not available are transferred to the nearest chest surgery center for the indicated operative procedure, which has been recommended prior to the transfer by the surgical collapse board at the selected chest surgery center after a study of the clinical records and serial chest x-ray films of the patient.

For the twelve-month period, October 1, 1941, to September 30, 1942, the number of tuberculous patients treated by surgical collapse surgery in our thirteen tuberculosis hospitals averaged 20.2 per cent. During this period 7912 tuberculous patients were under treatment, of whom 70.5 per cent were far advanced, 23.7 per cent were moderately advanced and 5.7 per cent had minimal involvement. A marked preponderance of the far advanced cases with a majority of our patients in the fifth and sixth decades tends to lower the percentage of patients whose pulmonary condition is amenable to collapse therapy.

Inducted pneumothorax was utilized in 1079 cases, while some form of phrenic nerve interruption was made in 143. Thoracoplasty was undertaken in 105, intrapleural pneumolysis performed in 11, and extrapleural pneumolysis done in one case. The Monaldi operation was employed in 7 cases and oleothorax utilized in an equal number. Thirty-five patients were given collapse therapy by the induction of pneumoperitoneum and in 182, to effect satisfactory collapse, combined operations were required. In 63 cases complicated by empyema, rib resection or thoracotomy was necessary. In addition, 28 combined operations were performed at chest surgery centers connected with general hospitals.

The combined operations were listed as follows:

Pneumothorax and Jacobaeus	12
Pneumothorax and Monaldi	1
Pneumothorax and oleothorax	7
Pneumothorax and phrenic nerve	55
Penumothorax and pneumolysis	61
Pneumothorax and rib resection	5
Pneumothorax and thoracoplasty	14
Pneumothorax and thoracotomy	3
Pneumothorax, oleothorax and rib resection	1
Pneumothorax, phrenic nerve and Monaldi	1
Pneumothorax, phrenic nerve and pneumolysis	11
Pneumothorax, phrenic nerve and thoracoplasty	1
Pneumothorax, phrenic nerve and pneumoperitoneum	1
Pneumothorax, pneumolysis and thoracoplasty	1
Pneumothorax, pneumoperitoneum and thoracoplasty	1
Phrenic nerve and Monaldi	2
Phrenic nerve and pneumonotomy	1
Phrenic nerve and pneumoperitoneum	16
Pneumonotomy and rib resection	1
Phrenic nerve and thoracoplasty	2
Phrenic nerve, pneumoperitoneum and thoracoplasty	2
Thoracotomy and rib resection	1
Thoracotomy and thoracoplasty	3
Thoracoplasty and Monaldi	1
Thoracoplasty and pneumolysis	1

Pneumonotomy, thoracotomy and phrenic nerve	1
Pneumoperitoneum, Monaldi and thoracoplasty	1
Pneumoperitoneum and thoracoplasty	4
Total	211

Seven hundred and fourteen patients hospitalized for pulmonary tuberculosis, who were treated by collapse therapy, were discharged during the period October 1, 1941, to September 30, 1942. Of the 470 who received induced pneumothorax, 11 were discharged as arrested, 20 as apparently arrested, 5 with the clinical status of the pulmonary condition quiescent, 271 with the pulmonary tuberculosis still active but improved, 103 were unimproved and 60 died in hospitals. Of the 61 who had some type of phrenic nerve operation, 4 were discharged as arrested, 1 as apparently arrested and 3 as quiescent. There were 27 of this group discharged with the pulmonary condition still active but improved. Nine patients were unimproved on discharge and 17 died while hospitalized. Sixty-two patients who had thoracoplasties were discharged, of whom 5 died while in the hospital, 3 left the hospital unimproved, 50 were improved at time of discharge, in 2 the pulmonary disease had reached a quiescent stage and 2 cases were apparently arrested. Of 121 patients who received other types of collapse therapy, including those with combined operations who were discharged during this period, 27 had their hospitalization terminated by death, 24 were discharged unimproved and 70 were improved at time of discharge.

The immediate results of surgical collapse therapy in our hospitals during a twelve month period may be summarized briefly as follows:

Died while hospitalized	15.3 per cent
Unimproved	19.6 " "
Improved	58.1 per cent
Quiescent	1.4 " "
Apparently arrested	3.2 " "
Arrested	2.4 " "

Of a total of 192 patients hospitalized for nontuberculous respiratory disabilities and treated by chest surgery during the period October 1, 1941, to September 30, 1942, inclusive, 19.3 per cent died, 10.9 per cent were unimproved, 51.0 per cent improved and 18.8 per cent were cured. The disabilities for which these veterans received chest surgery included: abscess, chest wall; abscess, pulmonary; abscess, subdiaphragmatic; abscess, subphrenic; bronchiectasis; bronchiogenic carcinoma; cyst, pulmonary; empyema with bronchial fistula and subphrenic abscess; empyema with pulmonary abscess; emphysema; fistula, chest wall; foreign body; gunshot wound; diaphragmatic hernia; pleurisy with effusion; pleurisy, suppurative; pneumonia; pyopneumothorax; pneumothorax requiring decompression; teratoma and tumor, benign.

Rudolph, who performed 244 thoracoplastic operations while assigned as full time thoracic surgeon at two of our chest surgery centers, recently reviewed the records and reported on certain features of the cases operated on. Slightly more than one-half of the patients (67) were between the ages of 40 and 50 years, 15 were over 50 years of age, and the oldest patient operated on was 57. He reported but one death in this older group as either immediately or remotely related to surgical operations.

Every patient operated on by Rudolph had pulmonary lesions classified as far advanced, with cavitation and positive sputum. The total mortality rate for the entire series was 6.5 per cent. Of the eight deaths in the series, one patient died within twenty-four hours following the first-stage thoracoplasty, seven

others died two weeks or more after operation.

The sputum conversion in Rudolph's series was reported as a whole slightly below the average of most other observers for the one year follow-up, although in several cases reported, less than six months had elapsed since operation and they could not be fairly considered in relation to end results.

Several years ago it became apparent that the mortality incident to cancer in the general population was increasing; consequently, the Veterans Administration took steps to make a thorough study of the disease in veterans. In the course of this study the coöperation of a number of specialists in the study and treatment of cancer was secured, among whom were such prominent specialists as Drs. James Ewing, Frank E. Adair, Max Cutler, Edwin Merritt, as well as a number of other men well known in the field of cancer.

As a result of this study, Tumor Clinics were organized at the following Veterans Administration Facilities: Hines, Illinois; Bronx, New York; Washington, D. C.; Atlanta, Georgia; Los Angeles, California; and Portland, Oregon.

Each Tumor Clinic is organized so that every patient is given the benefit of consultation by experts and consultants, as it has been found through years of experience that no single physician is alone competent to treat cancer, but the combined efforts of the surgeon, the x-ray specialist, the pathologist, the physicist, the biochemist and other specialists are deemed necessary to decide upon the diagnosis and treatment of each case.

The Tumor Clinics of the Veterans Administration are fully equipped and competently manned for the diagnosis and treatment of this disease. The clinics have on duty cancer specialists who have had extensive special training and experience in the diagnosis and scientific treatment of the disease. It may be pointed out here that Tumor Clinics have been established at strategic geographic points.

The treatment of cancer varies, depending primarily upon the site of the tumor and the kind of cancer, as well as the duration of the disease, although other factors may enter in. Another important consideration is that of treatment of choice; namely, should x-ray therapy, radium or surgery be instituted. Here again it is emphasized that cancer can be treated best in special hospitals where the necessary equipment and highly trained specialists are available.

An analysis of the number of patients with cancer of the lung, larynx and pharynx treated at Veterans Administration Facility, Hines, Illinois, from 1931 through 1942, showed an annual increase, but this is the result of the increase in the average age of the veterans of World War I. There was approximately the same number of patients admitted annually with cancer of the pharynx. This finding is probably due to the fact that cancer of the pharynx affects a younger age group than cancer of the larynx and lung. There were 693 patients treated for cancer of the lung at the Hines Facility during the twelve year period, 452 for cancer of the larynx and 54 for cancer of the pharynx during the same period, making a total of 1199 patients in the group of malignancies of the larynx, pharynx and lung. Sixty-two of the patients suffering from cancer of the lung received operative treatment, the operations of choice being exploratory thoracotomy in 41 instances, pneumonectomy in 13 cases, lobectomy in 5 cases and tracheotomy in 3 cases. In the group of 452 cases of cancer of the larynx, 244 operative pro-

cedures were done: namely, 152 tracheotomies, 57 laryngectomies, 13 laryngeal fissures, 12 gastrostomies, 8 neck dissections and 2 hemi-laryngectomies. In the treatment of 54 cases of cancer of the pharynx, 10 underwent tracheotomies and 1 gastrostomy. Of the total number of 1199 cases of cancer of the lung, larynx and pharynx, 317, or approximately 26 per cent, received operative treatment.

The Veterans Administration has not been content with the routine diagnosis and treatment of cancer but has also, through the stimulating efforts of General Frank T. Hines, the Administrator of Veterans' Affairs, secured an allocation of funds for continued scientific research. With these funds the Tumor Research Unit was established in the Hines Facility a number of years ago and is now in operation. Under the Research Division of Central Office and the personnel of the Tumor Research Unit at Hines, a number of studies are being conducted, with particular emphasis upon cancer of the skin and larynx. In addition, considerable research is being conducted to show the relationship of certain of the endocrine secretions to the cause of cancer and in which assayed methods are used to determine the quantity of endocrine secretions, as an early diagnostic test and also for the purpose of ascertaining the effective treatment of certain types of cancer.

Cancerogenic studies are also being conducted on animals in the hope that the nature of cancer production and ways of inhibiting cancer growth may be discovered.

At the Hines, Illinois, Facility the Administration has a radium emanation plant for producing radium gas or radon. Approximately one gram of radium is in solution and, by means of the emanation equipment, sufficient radon gas is manufactured for the treatment of all cancer patients at Hines. In addition, there are two grams of radium in an apparatus known as the "Radium Bomb." This apparatus is used for applying radium element in such conditions as cancer of the intestines, larynx and tonsils.

In each of the Tumor Clinics there is available high voltage x-ray equipment and a sufficient quantity of radium to take care of the needs of the veterans applying for treatment. There are, all told, approximately 3.9 gm. of radium and eleven high voltage x-ray machines in the Tumor Clinics of the Veterans' Administration.

RÉSUMÉ

Une revue est donnée de l'ouvrage accompli par le "Surgical Collapse Board" et les centres de chirurgie thoracique de l'armée.

Du premier octobre, 1941 au vingt septembre 1942, 7912 malades furent admis dans treize hôpitaux pour tuberculeux du Gouvernement. Vingt et deux dixièmes pour cent de ces malades furent traités par un pneumothorax artificiel vu par une thoracoplastie, 1079 cas par pneumothorax et 244 par thoracoplastie. Plus de la moitié des malades opérés par thoracoplastie étaient âgés de 40 à 50 ans.

Les cliniques pour tumeurs du Veterans Administration fournissent une analyse de 1199 cas traités au Hines Hospital pour cancer du poumon, du larynx et du pharynx. Trois cents dix-sept de ces cas furent traités opérativement.

SUMARIO

Al autor hace revista de los trabajos de la "Junta de Colapso Quirúrgico" y de la Cirugía Torácica en los varios centros de las Fuerzas Armadas.

De 7912 pacientes admitidos a los trece Hospitales para la Tuberculosis,

del primero de octubre de 1941 al treinta de septiembre de 1942, 20.2 por ciento recibieron el tratamiento terapéutico de "Surgical Collapse" (Colapso Quirúrgico).

"Neumotorax-Artifical" fué utilizado en 1079 casos. En 244 toracoplastias ejecutadas por Rudolph, escasamente más de 50 por ciento fuéron en pacientes de 40 a 50 años de edad.

Las Clinicas de Tumores de la Administracion de Veteranos son discutidas y analisadas en el tratamiento de 1199 casos de cancer de los pulmones, laringe y faringe en el Hospital Hines. De este numero 317 recibieron tratamiento quirúrgico.

Выводы

Из 7912 больных принятых в тринадцати государственных больницах для лечения туберкулоза от перваго Октября, 1941-ого года, до тридцатого Сентября, 1942-ого года, 20.2 процента были подверженны хирургическому коллапсу. Пневмоторакс был употреблен в 1079-и случаях. Из 244-ех торакопластик сделанных Рудольфом, добрая половвина упала на пациентов возраста от 40 до 50-и лет.

В статье так-же находится анализ Клиники Опухолей Администрации Ветеранов. Из 1199 случаев рака легких, гортани и зева в Гайнс Госпитал 317 были подверженны операции.

DUES EXEMPTION FOR THOSE ENGAGED IN ACTIVE MILITARY SERVICE

At the meeting of the United States Chapter of the International College of Surgeons held in Chicago on March 30, 1941, it was unanimously agreed by the Executive Council that Associate Members, Members and Fellows of the International College of Surgeons are exempt from payment of dues during the period of active military service.

Cirugía Arquitectónica de los Huesos*

(Architectonic Surgery of the Bones)

ALFONSO ORTIZ TIRADO, M.D., F.I.C.S.
MEXICO, D. F.

SUMMARY

A classic discussion concerning the survival of the bone graft is presented. The author bases his belief on the premise that if it is possible to cultivate a tissue in an artificial solution, the survival of a graft in such an ideal medium as the human organism would seem simple. He describes the instruments used in bone graft surgery, which he refers to as "architectonic surgery of the bones." He also describes Albee's technic for taking the graft and presents 12 cases.

DESEO relatar en este trabajo mi experiencia personal sobre los casos qurúrgicos, de injertos ósesos en mi Clínica, durante estos dos últimos años.

La cirugía reconstructiva de los huesos, usando preferentemente el tejido óseo, como material de síntesis, de sostén, de amarre, de fusión, de transficción, de restitución de pérdidas de substancia, debera tener en la actualidad, toda la importancia que ha adquirido con las sabias enseñanzas, que Albee ha recopilado en 30 años interrumpidos de valiosa experiencia; lo que él modestamente llama "Carpintería de los huesos," Yo la titularía. "Cirugía Arquitectnica de los Mismos."

Existen de un modo general dos teorías que dominan el ambiente sobre el uso del tejido oseo vivo tomado del mismo individuo y durante el acto operatorio: los que creen, que el transporte de una porción de hueso que se segrega de sus medios de irrigación, para incluirse en un lecho de tejidos y en contacto con superficies óseas recien avivadas, constituye un injerto; los mismo que se hace con las plantas, conservando susceldillas la vitalidad, para sobrevivir a este cambio; los otros son los que admiten que el hueso segregado de la circulación muere y que solo sirve como un armazón de sostén, mientras son invadidos sus canalículos de Havers por los capilares y llemas carnosas del lecho donde se implanta.

Yo creo que el injerto que lleva en su interior celdillas formadoras de hueso como son los osteoblastos, puestos en un medio propicio de irrigación y temperatura, puedan conservar su vitalidad hasta que el injerto adhiere firmemente, con su vector, por un proceso semejante al callo en las fracturas.

Un razonamiento muy sencillo puede servirnos para no discutir más este asunto, que ha dado lugar a largas y tediosas polémicas.

* Presented at the Third International Assembly of the International College of Surgeons held in Mexico City, August, 1941.

Carrel en sus medios conservadores artificiales puede hacer vivir durante años, tejidos cuyas células siguen viviendo y proliferando; con cuanta mayor razón podrán vivir colocados en medio ideal, como lo constituye el interior mismo de los tejidos afines, bañados por la misma linfa sanguínea y a la temperatura del organismo.

Solo la presencia de gérmenes podrá perturbar este proceso. De ahí que la técnica de la cirugía de los huesos re-

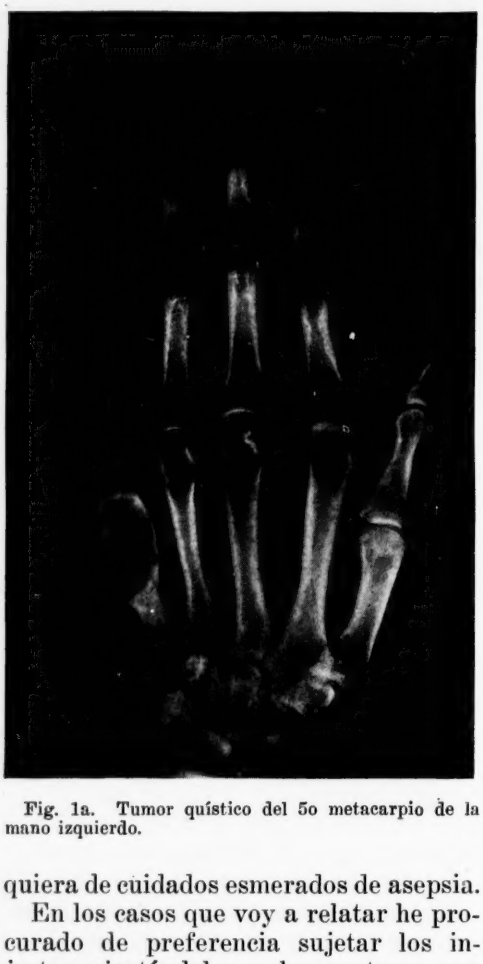


Fig. 1a. Tumor quístico del 5o metacarpio de la mano izquierdo.

quiera de cuidados esmerados de asepsia.

En los casos que voy a relatar he procurado de preferencia sujetar los injertos ajustándolos a los vectores por medio de pequeñas cuñas sin hacer perforaciones que debiliten la resistencia y sin usar casi en ningún caso, ningún material extraño, salvo el catgut crómico en sus numeros gruesos. El tendón de

Fig. 1b. Total repulsión del 5o metacarpiano por un trasplante oseo.

Canguro produce tan frecuentemente pequeños abscesos al nivel de los nudos, que lo he ido abandonando casi totalmente.

Algunas palabras sobre el instrumental usado de preferencia en mis casos clínicos.

La mesa de extensión cuyo uso es absolutamente indispensable; que no podrá ser substituída por el ayudante más experto, ha impreso a la técnica de la cirugía ortopédica un verdadero adelanto.

Las mesas en uso en mi Clínica son: lo de Albee y la de S. Kalan Hawlay.

Lo sierra eléctrica que ha suprimido casi por completo el choque quirúrgico

causado por las tomas de los injertos con cincel y martillo es, sin dura, el adelanto más importante realizado para mejorar la técnica.

Las sierras que uso son: la de Albee con motor portatil dentro del mismo cuerpo del instrumento, con sierras paralelas para tomar el injerto en un solo trazo, el torno para hacer las clavijas, perforadores, etc.

La sierra de Moorhead con motor separado que mueve tallo flexible y que le imprime a la sierra montada en el mago esterilizable una gran velocidad, da un corte neto y preciso.

La pequeña sierra montada en el mango de revolver con motor externo del Pantostad es excelente para perforar y limar superficies.

El aditamento adjustable a la sierra de Albee, con el cual se puede hacer corte vertical.

El Resto del instrumental es ya ampliamente conocido:

Cinceles
Martillo
Elevadores de periostio
Separadores
Guvias
Legras
Pinzas de Lambot
Cucharillas
Conductors para cinchos metalicos, etc.
Perforadores para alambres de Kishner.

No menciono más nombres, pues sería interminable la lista de los instrumentos que toman el nombre de los autores que les hacen pequeñas modificaciones y perfeccionan las ya conocidas.

TÉCNICA

La técnica para tomar el injerto comprende dos maniobras igualmente importantes:

Primera.—Selección del sitio más propicio y preparación de él, para que las sierras no encuentren ningún tropiezo.

Segunda.—La toma propiamente dicha, empleando las sierras paralelas o la sierra única que corta y completa la acción de las anteriores.

La selección del lugar más a propósito para una buena toma es indudablemente la cara- antero-interno de la tibia que nos puede dar injertos hasta de treinta centímetros de largo en un adulto de mediana estatura.

Las incisiones de la piel en esta región se deben hacer ligeramente curvas, con el objeto de que queden cubiertos el surco que deja el injerto por el espesor del colgajo de piel, tejido celular y aponeurosis superficial; pues en otra forma habría el peligro de que se fistulizara la herida, o cuando menos se retardara el período de cicatrización.

Descubierta la cara tibial escogida, y despegado el colgajo cutaneo que deberá ser tomado con pinzas para que en ningún momento interrumpa el camino de sierra, se traza ya con una pequeña regla metálica el tamaño y forma del injerto sobre la superficie ósea, a la cual se le deja integramente adherido el periostio.

Se retiran todas las compresas cercanas al camino de la sierra, pues es peligroso dejarlas al alcanze de los dientecillos que jiran a alta velocidad. Las manos del ayudante deberán igualmente quedar a conveniente distancia. Con el objecto de enfriar la sierra y evitar así la calcinación del injerto (que disminuye grandemente su vitalidad) el ayudante deberá verter suero fisiológico frío que puede ser goteado con una perita de caucho en el sitio donde la sierra va cortando y sobre la sierra misma.

Se hace recorrer a las sierras todo el trazo y haciendo una ligera presión se repasará dicho trazo hasta hacerlas penetrar en el espesor de la tabla tibial.

Para cortar los extremos se puede emplear la sierrita más pequeña o hacer un corte oblícuo con la sierra única.

Concluído el aserraje con un cincel fino (de lámina delgada), serán concluídos los cortes de los extremos; por

lo general haciendo palanca por un estremo, el injerto podrá ser separado facilmente.

En una compresita húmeda con suero caliente, será envuelto el injerto manejándolo lo menos posible.

Será suturada la herida, no importando que el surco queda lleno de sangre coagulada, pues éstos coágulos servirán para la cicatrización del hueso.

Un vendaje ligeramente compresivo bastará para contener la hemorragia producida.

En esta forma el injerto va provisto de sus elementos esenciales, perióstio adherido; hueso propiamente dicho con sus canalículos de Havers íntegros y endostio y medula.

En estas condiciones y salvo que haya necesidad de incuvar o modificar la forma del injerto, podrá ser sepultado dentro del lecho preparado y ajustado en la forma que menciono al principio de este artículo, o bien mantenido con suturas (Catgut Crómico) en sus números gruesos de preferencia.

REPORTES DE LOS CASOS

Caso No. 1: P. R. D.—Diagnóstica.—Fractura por aplastamiento del cuerpo de la 12a vertebra dorsal. Fracturas simples de costillas sin lesión pulmonar. Fractura del cuello de la escápula derecha. Ingresó abril 15 de 1941, salió junio 30 de 1941.

Generales.—Mexicano, masculino, casado, 40 años, chofer.

Molestias Principales.—Gripa en 1918.

Estado Actual.—A principios de enero de este año tuvo un accidente automovilístico a resultas del cual se produjo las fracturas arriba mencionadas. Las fracturas de las costillas y de la escapula curaron sin dejar secuelas pero la de la columna dejó dolor lumbal bajo la cifosis y tiene tendencia a hacerse más pronunciada.

Examen Físico.—El vertice de la jiba corresponde a la duodécima apofisis espino dorsal. Dolor provocado por percusión en el mismo sitio.

Pulso.—80; respiraciones 18; Presión sanguínea 130-75; temperatura 36. 2 C.

Pruebas de Laboratorio.—Wassermann negativo. El resto normal.

Rayos X.—Fractura simple per aplastamiento del cuerpo de la 12a. dorsal.

Tratamiento.—Primero se intentó reducir la fractura por hiperextensión y se colocó un corsé enyesado. Después se procedió a operarlo al través de una ventana abierta en la cara posterior del parato, bajo anestasia raquídea. Y consistiendo la operación en la toma de un injuerto de la tibia y su colocación en las apofisis espinosas de las tres últimas dorsales y las dos primeras lumbares, según téenica del Dr. Albee.

Evolución.—Normal. Alta a los dos meses. Condiciones generales y locales buenas. El injerto prendió perfectamente como lo demuestran las últimas radiografías.

Caso No. 2: P. C.—Diagnóstico.—Quiste oseo 5o. metacarpiano derecho.

Generales.—28 años, femenino, soltera.

Molestias Principales.—Dolor. Ligera dificultad en los movimientos del dedo meñique.

Antecedentes Personales.—Paludismo y tifoidea hace varios años.

Estado Actual.—Hace algunos meses notó la aparición de una tumoración en el dorso de la mano derecha, hacia el borde interno, poco dolorosa y que fué creciendo muy lentamente. Dificultad para mover el dedo pequeño. En el exámen físico se encontró una tumoración limitada, de consistencia osea, forma elíptica, formando cuerpo con el 5o metacarpio. Radiologicamente se encontró un quiste localizado a la diáfisis del metacarpiano.

Tratamiento.—Bajo anestesia local se resecó subperiósticamente la porción que comprendía el quiste, sin abrir las articulaciones vecinas. En el lugar de la porción de hueso extirpada se colocó un injerto, cobriéndolo con el periostio y tejidos blandos.

Evolución.—La recuperación funcional fué perfecta y las radiografías revelan una restitución anatómica completa.

Caso No. 3: R. G.—Diagnóstico.—Pérdida de sustancias del tercio medio del húmero derecho.

Generales.—35 años, masculino, casado, policía.

Molestias Principales.—Impotencia funcional completa del miembro superior derecho.

Antecedentes Personales.—Infección luética en 1934.

Operaciones Anteriores.—En 1935 le dieron un balazo en el brazo derecho. La primera operación fué hecha para extraer el proyectil y pequeñas esquirlas. La segunda para hacer una osteosíntesis con alambre de plata y la tercera para quitar el alambre.

Estado Actual.—Cuando fué operado para quitar el alambre fué porque se había infectado el hueso. Al fín cedió la infección pero quedó la pérdida de sustancia ya mencionada.

Examen Físico.—La circulación y la inervación abajo del codo se encuentran perturbadas. Los movimientos activos del antebrazo y la mano son sumamente difíciles y limitados. Ligera anquilosis del codo.

Análisis Laboratorio.—Wassermann ligeramente positivo. Resto de la pruebas normal.

Rayos X: pérdida de casi todo el tercio medio de la diáfisis.

Tratamiento.—Un injerto de unas 6 pulgadas se tomó de la tibia izquierda y se empotró en los extremos libres de la diáfisis, después de haberlos liberado y extirpado el tejido cicatricial. Se aplicó aparto enyesado de aereoplano.

Evolución.—Normal. El paciente fué visto por última vez en enero de este año. La recuperación funcional era casi completa, salvo por la anquilosis incompleta del codo. Las radiografías mostraron la perfecta unión del injerto y aún su engrasamiento.

Caso No. 4: F. V.—Diagnóstico.—Pérdida de sustancia del tercio medio de la diáfisis radial derecha, de origen traumático.

Generales.—25 años, policía, masculino.

Médico Encargado.—Dr. Alfonso Ortiz Tirado.

Molestias Principales.—Impotencia funcional com-

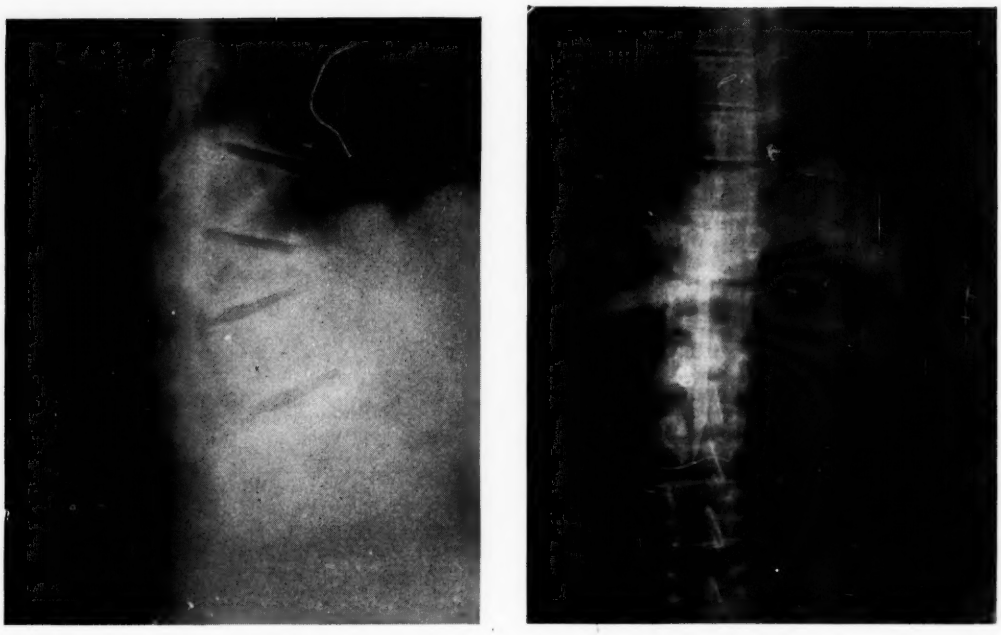


Fig. 2. Fractura por aplastamiento del cuerpo de la 12a vertebra dorsal.
a. Vista lateral b. Vista dorsal

pleta del antebrazo y de la mano derecha.

Antecedentes Personales.—Gonorrea hace 5 años. Bebe ocasionalmente.

Operaciones Anteriores.—Primera operación para drenar la herida infectada producida por la bala que hizo una fractura con minuta y expuesta del radio.

Estado Actual.—La Infección de que se acaba de hablar curó pero dejó una pérdida de sustancia de casi todo el tercio medio de la diáfisis. En estas condicones ingresó a mi Clínica.

Examen Físico.—Impotencia funcional del antebrazo y de la mano. Pulso 75, respiraciones 20, presión sanguínea 125-65.

Pruebas de Laboratorio.—Wassermann negativo. Otras pruebas normales.

Tratamiento.—Incisión de 7 pulgadas sobre el borde externo del antebrazo derecho, desde un poco abajo del codo hasta encima de la muñeca. Se liberaron los cabos radiales. Se quitó el tejido cicatricial. Un injerto tomado de la tibia se introdujo en los cabos del radio para reemplazar a la diáfisis pérdida. La herida se suturó y cubrió de la manera usual, y la operación terminó con la aplicación de un enyesado de la mitad del brazo a la palma de la mano.

Evolución.—Normal. Radiografías tomadas dos meses más tarde revelaron que el injerto había prendido admirablemente. Además la recuperación funcional notable.

Caso No. 5: A. M.DeL.—Diagnóstico. Mieloplaxoma de la epifisis superior de la tibia derecha.

Generales.—Mexicana, casada, 30 años de edad, labores de su hogar.

Molestias Principales.—Dolor en la rodilla, disminución de la motilidad en la rodilla en parte por dolor y en parte por el aumento de volúmen de la extremidad superior de la tibia.

Antecedentes Personales.—Ha tenido dos hijos que viven y son sanos.

Estado Actual.—A principios de 1937 le empezó a doler la rodilla derecha y poco después le empezó a crecer, principalmente abajo de la rótula. Siguió creciendo poco a poco hasta alcanzar más o menos imposible extenderla completamente como la del lado sano. El dolor aumentó pero no proporcionalmente.

Examen Físico y Radiológico. — Se nota un tumor abajo de la rótula esferoidal, duro y de superficie regular. La piel es normal salvo la presencia de gruesas venas. Las radiografías revelan la total destrucción de la epifisis tibial superior, sin ataque a la articulación misma, así como marcada decalcificación de la rótulo y la epifisis inferior de femur. Radiografías de otras partes del esqueleto 10 muestran normal.

Análisis de Laboratorio.—Pruebas preoperatorias normales. La biopsia rápida durante la operación reveló tratarse de un tumor quístico formado en su mayoría por mieloplaxas.

Tratamiento.—Por medio de una larga incisión anterior se excindió la pared anterior del quiste parcialmente y el contenido fué raspado cuidadosamente hasta encontrar hueso sano, pero sin abrir la articulación de la rodilla. La cavidad restante fué rellenada con gasa vaselinada esteril y no se suturó la piel. Aparato enyesado.

Evolución.—Las últimas radiografías muestran considerablemente recogimiento de la cavidad y regeneración de la epifisis. Se le practicará un injerto para apresurar la reconstrucción del hueso.

Caso No. 6: A. M. H.—Diagnóstico. Pseudoartrosis

después de la fractura de ambos huesos del antebrazo izquierdo.

Generales.—Mexicano, masculino, blanco, casado, 35, años, policía de tránsito.

Molestias Principales.—Impotencia funcional de la mano y antebrazo izquierdos.

Antecedentes Personales.—Amigdalitis crónica en la infancia. Gonorrea en 1926, sífilis en 1930.

Operaciones Anteriores.—Amigdalectomía hace veinte años: primera operación para reducción abierta alambre de plata para la osteosíntesis, fué un fracaso y dió por resultado pseudoartrosis. Segunda operación en el antebrazo, cuatro meses después de la primera, usando placas y tornillos, fué aún peor y dió osteomielitis. Una tercera operación fué necesaria para sacar las placas y tornillos.

Estado Actual.—Hace tres años yendo en motocicleta chocó cayendo sobre su brazo doblado y produciéndose una fractura de ambos huesos del antebrazo, transversal, en su tercio medio. Una semana después del accidente, se hizo la primera operación y después las otras como ya se dijo antes. Las condiciones del paciente cuando ingresó a mi Clínica eran las derivadas de pseudoartrosis, es decir: impotencia funcional total de la mano y antebrazo enfermos.

Examen Físico.—Temperatura 36.5 C, pulso 72, respiraciones 19, presión sanguínea 120-70.

Examenes del Laboratorio.—Wassermann positivo. Restos de los análisis y pruebas preoperatorias normal.

Tratamiento Antiluético.—Intenso.

Tratamiento.—Bajo anestesia general por ciclopropano se practicó la siguiente operación: incisión de 6 pulgadas sobre la cara anterior del antebrazo, extendiéndose de dos pulgadas abajo del codo hasta la muñeca. Toda la pseudoartrosis fué extirpada dejando al final cuatro cabos oseos libres. Se tomó entonces un injerto óseo de la tibia izquierda y se dividió en dos por su eje mayor. El siguiente tiempo fué fijar estos injertos óseos autógenos en los cuatro cabos del radio y cúbito a manera de reemplazar las porciones pérdidas de las correspondientes diáfisis. La herida fué suturada y cubierta de la manera habitual concluyendo la operación con la aplicación de un enyesado de la mitad del brazo a la palma de la mano.

Fig. 3. Pseudoarthrosis después de la fractura de ambos huesos del antebrazo izquierdo.

Evolución.—Normal. El paciento salió de la Clínica al quinceno día. El aparato se quitó a los sesenta. La recuperación funcional ha sido casi completa.

Caso No. 7: J. P. L.—Diagnóstico.—Pseudoartrosis del tercio superior de la tibia derecha.

Generales.—Mexicano, blanco, casado, 33 años de edad, policía de tránsito.

Molestias Principales.—Impotencia funcional de la pierna derecha.

Antecedentes Personales. Changro sifilítico en 1926.

Estado Actual.—El 10 de abril de 1940 en un accidente de aviación se hizo una fractura expuesta del tercio superior de la pierna derecha, la cual se infectó y le dejó una mala consolidación. Sendoartrosis.

Fig. 4. Quiste de la epífisis inferior del radio derecho.

Examen Físico.—Motilidad lateral de la pierna. Imposibilidad de permanecer de pié sobre ella y de usarla para caminar.

Análisis Laboratorio.—Wassermann y reacciones similares fuertemente positivas. Otras pruebas normales.

Tratamiento.—Después de corto pero intensivo tratamiento antisifilítico fué operado con raquianestesia, efectuándose con las sierras paralelas un injerto por despizamiento tomado del fragmento inferior y colocando el pedazo superior del injerto en el lugar dejado al correr el inferior.

Evolución.—Muy buena. A las cuatro semanas se le permitía caminar con muletas y a los tres meses la recuperación anatómica y funcional era completa.

Caso No. 8: A. S.-R.—Diagnóstico.—Quiste de la epífisis inferior del radio derecho.

Generales.—Mexicano, masculino, blanco, casado, 34 años de edad, profesor de química.

Molestias Principales.—Disminución de la motilidad de la muñeca.

Estado Actual.—Hace un año empezó a notar que su muñeca derecha aumentaba de volumen, especialmente la epífisis inferior del radio, muy despacio pero de modo constante. Como la tumoración era indolente no le puso la menor atención. Conforme pasó el tiempo y por el aumento de volúmen los movimiento de flexión y extensión de la mano se limitaron parcialmente.

Examen Físico.—Un tumor de forma espérica, consistencia dura, y superficie regular se encontró sobre la cara externa de la muñeca derecha. Mide 1½ pulgada de diámetro.

Las Radiografías.—Mostraron un quiste óseo bien limitado, de paredes delgadas, situado inmediatamente arriba del cartílago diartrodial, pero sin invadir la articulación.

Pruebas del Laboratorio.—Normales.

Tratamiento.—Bajo anestesia local la pared externa del quiste fué extirpada y su contenido blando de color amarillo fué raspado hasta encontrar hueso sano. La articulación no se abrió. Después de esto un pequeño injerto óseo se tomó de la tibia derecha y se colocó en la cavidad rellenando los espacios restantes con pequeños pedazos de hueso. Sutura por planos a muerte. Aparato de yeso de los dedos al codo.

Evolución.—Las últimas radiografías muestran restauración normal del hueso. La función es de nuevo perfecta.

Caso No. 9: P. R.—Diagnóstico.—Fractura no consolidada con pérdida de sustancia en el tercio inferior de la pierna izquierda.

Generales.—Mexicana, soltera, 18 años de edad.

Molestias Anteriores.—Acortamiento de la pierna. Imposibilidad para caminar sin muletas.

Operaciones Anteriores.—Hace 8 años cayó sobre la pierna produciéndose una fractura cerrada de la misma arriba de los maleolos. Se le hizo esteosíntesis con place y tornillos la cual se infectó y fué necesario quitar el material de síntesis. Una segunda osteosíntesis también con placa y tornillos fué intentada corriendo la misma suerte que la primera. Depués de la última operación quedó gran pérdida de sustancia de la tibia en su tercio inferior.

Estado Actual.—Cuando entró a la Clínica no podía caminar y presentaba notable acortamiento de la pierna con movilidad anormal del segmento inferior.

Examen Físico.—Estado general ligeramente afectado a causa de la prolongada infección. Además, localmente, atrofia esquelética de las partes blandas.

Temperatura.—36.7 Pulso 80. Resp. 18, Presión arterial 115-65.

Análisis Laboratorio.—Wassermann negativo. Cuenta sanguínea demostró ligera anemia crónica secundaria y polimorfonucleares aumentados. Hígado ligeramente insuficiente.

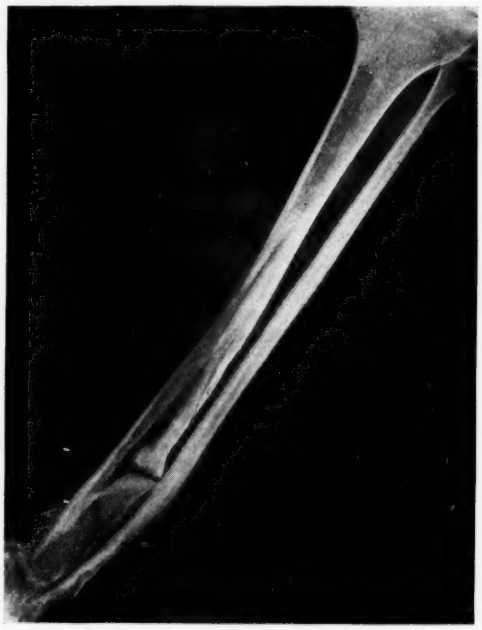


Fig. 5. Fractura no consolidada de la pierna izquierda.

Tratamiento.—Depués de haber mejorado el estado general con pequeñas transfusiones repetidas fué operada bajo analgesia raquídea y la operación consistió en cortar un injerto con la sierra gemela de la parte superior de la tibia y despizarlo enclavándolo en el fragmento inferior en el que previamente se había labrado un surco o canal. Aparato enyesado de la mitad del muslo al pié.

Evolución.—Magnífica. El aparato se quitó a las 8 semanas y se le permitió andar con muletas. Se comenzó tratamiento físico, especialmente masaje y ejercicios musculares que pronto mostraron su benéfica influencia. Actualmente puede caminar usando un zapato especial construído por dentro de tal modo que aumenta en unas dos pulgadas la longitud de la pierna.

Caso No. 10: G. L.—Diagnóstico.—Fractura antigua no consolidada del cuello femoral izquierdo.

Generales.—Casado, 46 años, trabajador.

Molestias Principales.—Acortamiento, fuerza disminuída. Dificultad para la marcha. Dolor en la cadera.

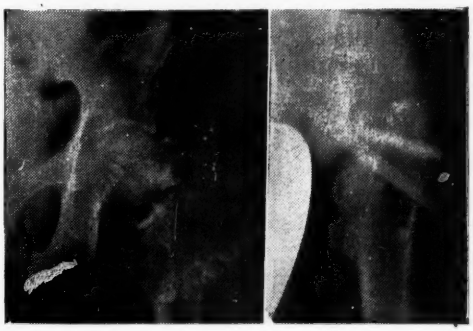


Fig. 6. Fractura antigua no consolidada del cuello femoral izquierdo.

Antecedentes Personales.—Fractura de varias costillas en un accidente automovilístico hace varios años. Gonorrea. Tifo cuando tenía 8 años.

Estado Actual.—El 8 de julio de 1940, al ir en bicicleta, fué atropellado por un camión que le produjo la fractura del cuello del femur izquierdo. Fué llevado al hospital donde permaneció por dos meses. Cuando salió la fractura no había consolidado y en estas condiciones ingresó a la clínica.

Examen en Físico.—Datos normales.

Laboratorio.—Wassermann negativo. Otras pruebas normales.

Tratamiento.—Bajo analgesia raquídea se practicó un enclavijamiento doble con clavija autogena de la fractura, siguiendo la técnica preconizada por el Dr. Albee. El injerto fué tomado de la tibia derecha y dividido en dos a lo largo de su eje mayor y en dos puntos se realizó el enclavijamiento. Se terminó la operación aplicando un ensayo del tipo Calot.

Evolución.—Normal. El paciente podía caminar al cabo de dos meses. Las radiografías muestran el buen callo en el sitio de la fractura y la incorporación de los injertos.

Caso No. 11: M. D.—Diagnóstico.—Osteitis fibrosa quística del femur y coxal izquierdos.

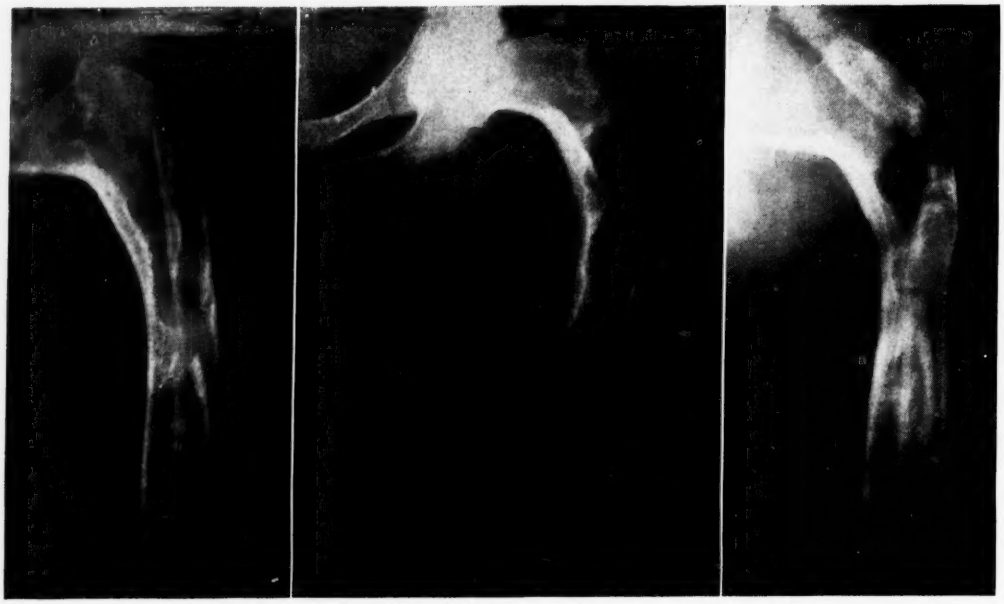


Fig. 7. Osteitis fibrosa quística del femur y coxal izquierdos.

Generales.—Mujer, soltera, 34 años.

Molestias Principales.—Dolor lumbar bajo. Dolor en la cadera izquierda Acortamiento del miembro inferior izquierdo, como de 6 centímetros.

Antecedentes Personales.—Apendicitis aguda en la segunda infancia.

Operaciones Anteriores.—Apendicectomía con canalización hace 20 años.

Estado Actual.—Empezó a esta enferma cuando tenía 16 años, con dolor en la cadera izquierda cuando caminaba. Fué a ver a un médico que la encamó por tres meses y le recetó calcio y yodo. Cuando la levantó notó el acortamiento y adelgazamiento del miembro, así como la incurvación del femur izquierdo. Actualmente tiene un proceso quístico que comprende la mayor parte del femur izquierdo así como el coxal arriba de la articulatión de la cadera. Las radiografías de otras partes de su esqueleto se han mostrado normales. La química sanguinea es como sigue: Fósforo, 3.2 mg.; Fosfatasa, 3.2 unidades; Calcio, 10 mg.; Estos valores como se ve son normales.

Examen Físico.—Bajo anestesia por ciclopropano dos operaciones sucesivas se han realizados, consistentes en los mismos, es decir: extirpación de los quistes después de la trepanación con sierra eléctrica e inclusión de injertos óseos y birutas tomadas de la tibis izquierda ambas veces. La única diferencia fué que en la primera vez se trató el quiste mayor, de la parte media de la diáfisis femoral y la segunda vez el superior, vecino del gran trocanter. Aparato enyesado después de la intervención.

Evolución.—Muy buena. Las radiografías muestran la perfecta fijación e inclusión de los injertos.

Tengo una película a colores ilustrativa sobre éste caso que tendré mucho gusto en exhibir, tomado de la segunda intervención.

Caso No. 12: N. C.—Diagnóstico.—Luxación congénita bilateral de las caderas.

Generales: Mexicana, soltera, 18 años.

Molestias Principales.—Claudicación.

Historia Familiar.—Una abuela padeció lo mismo.

Estado Actual.—A la edad de 4 años se hizo la primera tentativa de reducir las caderas por el método cerrado. Esto fué posible sólo en lado izquierdo y a pesar de todos los esfuerzos no se pudo lograr en el derecho. En estas condiciones se le aconsejó a la mamá esperar a que la niña avanzara en edad para crearle un nuevo acetábulo quirúrgicamente. Asi la operé a la edad de 15 años.

Examen Físico y Radiológico.—La paciente había usado muletas por más de 10 años. El miembro enfermo era desde luego más corto y atrifiado. Las radiografías mostraban el acortamiento y deformación del cuello femoral así como de la cabeza y la falta de cavidad cotiloidea.

Análisis Laboratorio.—Normales.

Tratamiento.—Se le hizo una reconstrucción del cotilo, bajando una parte de ala del ilíaco, bajo anestesia raquidea, segun técnica de Albee. Se terminó con la aplicación de un Calot doble.

Evolución.—El aparato se quitó a las nueve semanas y se siguió con masaje y movilización activa y pasiva. Los resultados finales han sido espléndidos, y la pacienta camina sin muletas y sin dolor.

SUMARIO

Se presenta la clásica discusión sobre si el ingerto óseo sobrevive o solo sirve de guía a una neoformación del tejido vecino. El autor se muestra partidario

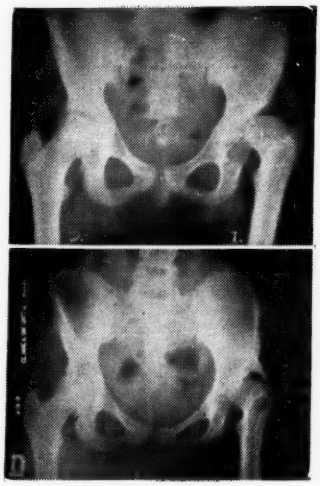


Fig. 8. Luxación congénita bilateral de las caderas.

de lo primero, diciendo que si pueden cultivarse tejidos en líquidos artificiales, mucho más podrán sobrevivir las células en un medio ideal como es el organismo. Describe los instrumentos que usa para la cirugía del ingerto, la cual llama "Cirugía Arquitectónica de los Huesos." Describe la técnica de Albee de toma del ingerto. Presenta 12 casos de ingertos óseos.

RÉSUMÉ

L'auteur présente la classique discussion sur la survie de la grêffe osseuse. Il croit à cette survie, disant que si la culture des tissus en milieu artificiel est possible, d'autant plus doit l'être la survie dans un milieu idéal comme l'organisme. Il décrit les instruments qu'il emploie pour la chirurgie des greffes osseuses, qu'il appelle "Chirurgie Architecturale des Os." Il décrit la technique d'Albee pour prendre la greffe. Il présente 12 cas de greffes osseuses.

Выводы

Автор разсматривает вопрос переживания трансплантата кости. Он того мнения, что если возможно культивировать ткань в усскуственном растворе, то переживание трансплантата в такой идеальной среде, как человеческий организм, гораздо более уверен. Автор описывает инструменты употребляемые им при "архитектонической хирургии костей." Он также описывает технику Албе при приготовлении трансплантата и представляет группу 12-и больных.

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Cerebral Injuries*

MAJOR MANUEL SANCHEZ GARIBAY
MEXICO, D. F., MEXICO

THE subject "Cerebral Injuries" is a most timely one in view of the present world conflict. Serious craniocerebral injuries are divisible into two main classes: closed wounds and open ones. Neither is foreign to military experience. Before considering these two types of craniocerebral injuries, it would be best to say something about cerebral concussion, which is common to all.

Cerebral concussion may be described as a state of complete unconsciousness resulting from the application of physical force to the brain. It develops instantaneously. It is not caused by, nor necessarily associated with, any gross changes in the nervous tissue such as lacerations, contusions or hemorrhages. It is of relatively brief duration, and from it the patient makes a complete recovery without any sequelae. It is worth emphasizing that the period of unconsciousness which results from simple cerebral concussion is always brief.

The patho-physiology of cerebral concussion and its development is still the subject of considerable controversy. There are those who believe that these brief states of unconsciousness are in some way intimately related with rapid acceleration or rapid deceleration of the mental processes. In what way that interferes with the nervous function or what changes are produced within the nervous tissues is unknown. Others, supported by the recent work of Scott, are of the opinion that cerebral concussion results from blows to the head of sufficient severity to increase the intracranial pressure momentarily above the level of the systolic blood pressure, thus producing a complete but very temporary cerebral ischemia.

Obviously, if only cerebral concussion resulted from craniocerebral injuries, they would not be a matter of great concern. It is the more serious and severe injuries, so often associated with cerebral concussion, that really excite our attention. For consideration of these more extensive injuries, it is well to divide craniocerebral injury into two classes, as we have noted before—the closed and open wounds.

CLOSED WOUNDS—CONTUSIONS AND LACERATIONS

Bruising of the surface of the brain, so-called contusion and laceration, is the most common gross injury to the brain produced by craniocerebral trauma. Obviously, contusions and lacerations of the cerebral substance can be produced by depressed fractures and by the penetration of foreign bodies. Far more common, however, is the contusion and laceration of the surface of the brain which occurs as the result of blows to the

*Presented at the Fourth International Assembly of the International College of Surgeons, New York, June, 1943.

head where there is no penetration of the intracranial cavity. These changes are always the most severe in the softer cerebral cortex, often to the exclusion of the underlying white matter. There are certain parts of the brain which are particularly susceptible to this type of trauma—the orbital surfaces and tips of the frontal lobe, the lateral surfaces and tips of the temporal lobes and, less commonly, the tips of the occipital lobes.

As has long been well known, such damage to the cerebral cortex is often found in that part of the brain opposite the point at which the impact was delivered to the skull—*contre coup* injury. Such injuries to the tips of the temporal lobes and tips of the frontal lobes commonly produce no direct neurologic evidence of their presence. However, because the principal blood supply to the cerebral cortex comes from blood vessels lying in the pia mater on its surface, and as these blood vessels must of necessity be torn when the cortex is torn, the most typical manifestation of such contusion and laceration of the cerebrum is blood in the cerebrospinal fluid. Traumatic subarachnoid hemorrhage is, therefore, practically *prima facie* evidence of lacerations of the cerebral cortex. Of this hemorrhage, we shall have more to say later. Occasionally, of course, contusions and lacerations of the cortex may occur in such regions as the precentral area where they give rise to localized convulsions and paralyses.

EDEMA

In recent years, much has been said and written about the appearance of cerebral edema, as the result of craniocerebral injury. The experimental work of Pilcher has raised considerable doubt as to whether cerebral edema ever occurs as the result of cerebral concussion. With more severe and extensive injuries to the brain tissues, edema doubtless does occur, but its importance has been greatly overemphasized. In fact, many surgeons have become so impressed with the importance of cerebral edema that they not only deny to their patients necessary fluid but, by the use of various dehydrating agents, rob them of what little they have besides. It is surprising how many people have lost sight of the fact that it is impossible to subtract fluid from an edematous brain without at the same time taking away valuable and important fluids from all other tissues of the body as well.

Careful observation of the patient is essential if the complications are to be promptly recognized and adequately treated. Of these, the intracranial hemorrhages are the most important. The extradural and subdural hematomas give rise to the symptoms of cerebral compression and demand prompt evacuation. Intracerebral hemorrhages give rise to similar manifestations but are extremely rare. Subarachnoid hemorrhage is the most common type of bleeding to result from cranial trauma, causing meningeal irritation, and the treatment is spinal puncture. Small hemorrhages into the brain stem, pons and mesencephalon are common and are amongst the most frequent causes of death from craniocerebral injury. Such hemorrhages often cause prolonged periods of unconsciousness, paralysis of the oculo-motor nerves and disturbances of the temperature-regulating mechanism.

COMPOUND CRANIOCEREBRAL WOUNDS

Open craniocerebral wounds, produced in war, usually by the penetration of foreign bodies, demand prompt and efficient treatment if a high mortality is to be avoided. This treatment divides itself automatically into two stages.

Treatment at or near the front, where one is pressed for time and limited by

the lack of proper equipment, should be confined to necessary first-aid treatment. Morphine, so valuable in the treatment of wounds elsewhere in the body, should be avoided, if possible, in the treatment of craniocerebral wounds.

Shock should be treated promptly, not with stimulants and heat, but with intravenous administration of plasma and blood, or other fluids if those are not available. Sulfanilamide should be dusted into the open cranial wound and a sterile dressing applied after the major bleeding points have been controlled. First-aid treatment should not extend beyond these simple but important measures.

Having given first-aid treatment, it now becomes important to transfer the patient to some point back of the lines where time, equipment and personnel are such as to give the adequate treatment the patient deserves. This transfer should be made promptly, for if one is to avoid serious infection it is best that final and definitive treatment should take place within twenty-four hours. Before operation has begun upon this open craniocerebral wound, it is important that shock has either been controlled or is being adequately treated. The head should be completely shaved and thoroughly cleansed. X-ray pictures of the skull should have been taken so that the surgeon may be as completely informed as possible as to the nature of the wound which he is about to explore.

The wound should then be opened by an adequate incision so as to provide the surgeon with ample room in which to work and in which to inspect the trauma. Dirty, bruised tissue should be thoroughly removed by cutting away, by irrigation and by suction. This includes not only removal of traumatized and dirty scalp but removal of fragmented and contaminated bone, torn and contaminated meninges and contused and soiled brain tissue as well. It is important that all fragments of bone which have been driven into the brain be removed; the bullet also, if it is readily accessible. After thorough débridement and irrigation of the wound and control of all bleeding points by the use of irrigation, suction, electric cautery, bits of muscle, silver clips, etc., the entire wound should be dusted with sulfanilamide.

Sulfathiazole should not be used because of the danger of producing convulsions. Adequate débridement and thorough cleansing render drainage undesirable. There is still considerable debate as to whether or not the dura mater should be closed. If it is possible to close the dura mater by itself, then certainly that is desirable. Transplants from the fascia lata or from the periosteum, which are of necessity deprived of their blood supply, should be avoided. There is no argument, however, regarding the scalp. It should be closed tightly over the defect of the skull, even if that requires making incisions elsewhere in the scalp and transferring portions of the scalp to close the defects produced by the missile. After such an operation, it is important that the administration of one of the sulfa drugs, preferably sulfadiazine, be continued and the wounds be watched closely for the possible development of infection. In the event that any evidence of infection appears, the wound should be immediately opened and proper drainage instituted.

By the proper and intelligent coördination of a sound knowledge of anatomy and physiology of the nervous system, of the symptomatology of neurologic disease and of sound surgical principles, it will be possible to give our soldiers the medical care and attention which they deserve and to reduce the mortality and morbidity to a level commensurate with modern medical progress.

RÉSUMÉ

Deux groupes de traumatismes cranio-cerebraux sont étudiés: les contusions et lacérations fermées et les plaies ouvertes dues à la pénétration de corps étrangers.

Un diagnostic précoce et un arrêt de l'hemorrhagie sont essentiels dans les plaies fermées. L'auteur est d'avis que l'oedème dans ces plaies n'a pas la grande importance qu'on lui a attribué. Les plaies ouvertes sont traités au front immédiatement, administration intra-veineuse de plasma sanguin, emploi de sulfanilamide et pansements stériles.

Dans les stations d'arrière les rayons-x précèdent le débridement, l'irrigation des plaies et l'application de sulfanilamide. L'emploi du sulfathiazole est contre-indiqué, car il peut provoquer des convulsions. N'ayez pas recours au greffage de fascia ou de périoste sur la dure-mère.

SUMARIO

Dos clases o grupos de heridas carnio-cerebrales son discutidas: heridas cerradas (contusiones y laceraciones) y heridas abiertas causadas por penetración de cuerpos extraños. Pronto reconocimiento diagnóstico y tratamiento de hemorragia en heridas cerradas es esencial. Es la opinión del autor que la importancia de la edema en esta clase de heridas o traumas es exagerada. Heridas abiertas deben recibir atensión de primer-auxilio en la linea-frente de batalla que incluye la administración intravenosa de plasma de sangre, aplicación de sulfanilamida y cura a telas esterilizadas.

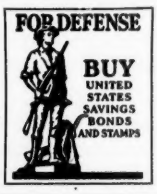
Radiografía debe anticipar la operación de "débridement" en las estaciones de retaguardia, irrigaciones antisepticas y aplicación de sulfanilamida. El uso de sulfathiazole es contraindicada, por peligro de causar convulsiones o espasmos.

El uso de fascia-lata o periostium como trasplante para la dura mater debe ser evitado.

Выводы

Автор трактует о двух типах черепно-мозговых поражениш: глухих и открытых. Быстрое распознание и лечение кровотечения играет важную роль при закрытых ранениях. Роль мозгового отека преувеличен при этих ранениях. Открытыя ранения нужно лечить во фронтовой линии, включая переливания плазмы, употребления сульфа препаратов и стерильных повязок. Все это делается после рентгеновских снимок. Сульфатиазол противоуказан, так как он может причинить конвульсии.

Автор против пересадки фасции или надкостниицы в твердую мозговую оболочку.



THIS IS YOUR COUNTRY TO HAVE AND TO HOLD

KEEP HER FOREVER SAFE AND STRONG

BUY MORE AND MORE WAR BONDS AND STAMPS

Una Modificación a la Técnica de Neumoventriculografía*

(Modification of the Technic of Ventriculograpy)

M. VAZQUEZ, M.D., F.I.C.S.
MEXICO, D. F.

SUMMARY

The author offers the following modification of the technic of ventriculography: Each of the two ventricular trocars is connected by means of a short rubber tube to a suction and pressure valve mounted on a 2 c.c. syringe. The two syringes are fixed and so placed that they can be operated synchronously with one hand, and in such a way that while the ventricular needle is aspirating the cerebrospinal fluid the the other injects into the ventricle an equal amount of air.

Because of the importance of determining the patency of the foramen of Monroe, the operation is begun by injecting through the air syringe one-half of 1 c.c. of a solution of indigo carmine which should appear rapidly in the fluid withdrawn. This procedure may be continued until all of the spinal fluid is replaced with air from the ventricular system. If the operator fails to obtain a colored solution after withdrawing two, or at the most three, syringes full of the fluid, he should immediately perform a double puncture of the ventricle that has been injected with the colored solution and through it replace its fluid with air. The same procedure is then performed in the opposite ventricle.

The clinical course of fourteen cases so treated, seems to justify the author's opinion that when patients are subjected to this modified form of pneumoventriculography, they exhibit a great tolerance to the injection of air. This was particularly noted in the cases that were not immediately operated upon, and in whom the air was allowed to be reabsorbed spontaneously.

SON ya muy bien conocidos los procedimientos que desde que el genial neurocirujano, Walter E. Dandy el año de 1918, se han venido utilizando con pequeñas variantes para hacer visibles los contornos de las cavidades ventriculares cerebrales, con fines diagnósticos de existencia y de localizaciones de procesos neoplásicos de los elementos anatómicos de craneo y cerebro. Por esta razón y en obvio de tiempo que en esta ocasión estamos obligados estrechamente a ahorrar, no me ocuparé de ninguno en particular sino solo trataré de explicar lo más brevemente, cuál es el fundamento de la modificación que hemos introducido, en concepto nuestro con resultados ampliamente favorables.

Los pacientes que deben ser sometidos a la exploración por medio del estudio de sus cavidades ventriculares, sufren muy comunmente, pudiera establecerse que son constantes sus trastornos, por la

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producción de diversos fenómenos que sucintamente pueden ser agrupados como fenómenos de profundo desequilibrio vago-simpático.

En efecto. La trepanación y la sola punción cerebral son inocuas e indoloras, pero la evacuación de líquido céfalo-raquídeo y su sustitución por cualquiera de los medios de contraste que hasta ahora conocemos, determinan de inmediato molestias de variable intensidad que pueden ser desde un pequeño dolor de cabeza hasta, en casos poco frecuentes, por ventura, condiciones sincopales cardiacas y respiratorias que ponen en peligro inminente la vida.

Este grupo de trastornos que esencialmente consisten en dolor muy comunmente localizado de pronto a la región frontal aunque a medida que se avanza en la evacuación de los ventrículos, se generaliza a toda la cabeza; de intensidad variable más en relación con la susceptibilidad individual que con otra circunstancia, puede llegar a ser extremadamente violento e intenso a grado tal que en ocasiones se tiene la impresión aparente o real de que el sujeto cae en estado lipotímico solo por esas dos condiciones de violencia e intensidad; del dolor vómitos en los que el esfuerzo aumenta considerablemente la intensidad misma o por lo menos estado nauseoso; profunda palidez de los tegumentos de la cara que a los pocos minutos puede ser substituída en ocasiones por congestión cefálica muy aparente en las conjuntivas; vertigo, muy constante aún en ausencia de la cefalea, pero muy frecuentemente acompañado de la nausea o del vómito; temblor de manos o miembros superiores y aún posible de generalizarse, descenso real de temperatura superficial en contraste con elevación apreciable, cincodécimos a un grado, de la temperatura de las cavidades naturales; sudo profuso particularmente notable en la mitad superior del cuerpo; lagrimeo en ocasiones abundante; flacidéz muscular que a veces nada raras, imposibilita al sujeto aún para sostenerse en pié; descenso de la tensión sanguinea que ante los trastornos citados, clinicamente no podría dejar de estar presente; este grupo de trastornos que puede presentarse y de hecho se presenta durante los momentos en que se practica la evacuación de líquido y su sustitución por el medio de contraste, debe ser considerado como una serie de molestias y peligros inmediatos a la ventriculografía.

Cuando el paciente es llevado a la mesa de rayos X, en general han desaparecido la mayor parte persistiendo sin embargo el dolor de cabeza que siendo constante y generalizado a todo el cráneo, aumenta con los cambios de posición que inevitablemente deben darse al sujeto para la toma de las radiografías.

Habiendo practicado todos los procedimientos de trépanopunción cuya descripción fué posible tener en nuestras manos, dedujimos la importancia ya advertida por los autores, de la necesidad de evitar el cambio de presiones en las cavidades ventriculares, y así se hizo construir un simple dispositivo que permite extraer el líquido céfalo-raquídeo e inyectar simultaneamente el aire en cantidades rigurosamente iguales puesto que las jeringas del aparato funcionan sincrónicamente, aunque inversamente, una extrayendo el líquido y arrojándolo hacia afuera y la otra tomando el aire de fuera e inyectándolo a la cavidad ventricular. Cuando la comunicación interventricular está permeable, todo se reduce a extraer líquido por un lado e inyectar aire por otro, con lo cual cambiando la posición del paciente en forma apropiada, se obtiene que el aire que entra por un lado, impulse a salir el líquido por el otro y aún el tercer ventrículo según podrá verse en la película que ilustra este trabajo. Cuando la

comunicación interventricular se ha perdido, lo cual debe ser advertido muy cuidadosamente para no inyectar aire en un ventrículo que no se vacía, aumentando así la presión interior de manera peligrosa, debe hacerse punción doble, o usar tracar de doblecorriente para cada ventrículo con lo cual el dispositivo puede trabajar sin dificultad mayor.

Se comprende que en ocasiones no hay posibilidad para localizar con el trocar alguno de los dos ventrículos, en cuyo caso la punción bilateral es imposible; la resolución es idéntica a la del caso en que el agujero de Monro de alguno de los dos ventrículos está impermeable, es decir se punciona y cambia el líquido por aire de un solo lado.

La condición de evitar las modificaciones de presión intraventricular, hasta donde técnicamente es posible, mediante este proceder, ha dado para nosotros los más favorables resultados desde el punto de vista de la yugulación, podriamos asentar, completa, sin caer en exageración, de todos los trastornos inmediatos, provenientes de la trépano-punción.

Es verdad que el número de nuestros pacientes es aún muy pequeño más estando habituados a ver en el trabajo corriente de varios años, que ninguno de ellos, ha dejado de manifestar aunque fuese molestias, que si no de mayor importancia son siempre muy desagradables, nos llamó altamente la atención que en el primero de aquellos en quienes se ha puesto en práctica esta modalidad de trépano-punción, no hubiese el menor trastorno de modo que aún fué posible que el sujeto se transladara caminando normalmente y sin sufrimiento alguno, a la mesa de rayos X. Luego los cambios de posición para tomar los diversos aspectos de las cavidades ventriculares, que como es bien sabido y ya se dejó anotado en lineas anteriores, producen el aumento considerable de la cefalea residual, no produjeron en él, la menor molestia.

La impresión que este primer caso nos produjo fué la de que además de la influencia que pudiera tener el procedimiento, nuestro enfermo habría de tener una también tolerancia, que aunque anteriormente, no habiamos visto, en ninguno podría en el caso, ser, con aquella, lo que hubiera determinado la perfecta condición en que quedó el paciente después de su trépano-punción. No obstante a este han seguido cinco más y en todos ellos, por cuanto se refiere a los trastornos inmediatos no ha habido alguno digno de anotarse.

No sucede lo mismo con otro grupo de fenómenos seguramente de mayor importancia desde el punto de vista del peligro para la vida, que se presentan tardiamente digamos de cuatro a diez horas posteriormente a la trépano-punción. Estos son fenómenos propios de la condición de hipertensión intracraneana, violenta y brutal acompañada de edema agudo de cerebro. Ya se sabe todo el gravísimo peligro que esto acarrea y la necesidad imperiosa que obliga al neurocirujano a practicar su intervención quirúrgica inmediatamente después de haber tomado las ventriculografía.

A decir verdad, no obstante, la intervención por sí sola no sería en la gran parte de los casos suficiente para evitar los trastornos y peligros tardios de la trépano-punción si no fuera porque deliberada o accidental o necesariamente durante las maniobras quirúrgicas se abre el ventrículo cerebral y se expulsa así el aire contenido dentro de él. Aun existe como resultado de la observación de que el aire produce una rápida y abundante secreción de líquido céfalo-raquídeo por irritación de los plexus coroides, el recurso de puncionar nuevamente una o las dos cavidades ventriculares, para darle salida cuando la

situación post-operatoria del paciente puncionado manifiesta que comienzan a presentarse los trastornos tardíos.

Asentado lo anterior creemos que si hay alguna necesidad o interés terapéutico en proceder a la intervención inmediatamente después de haber practicado la trépano-punción, con la modalidad ya descrita, no hay inconveniente alguno en hacerlo, dadas las magníficas condiciones en que queda el paciente según nuestras observaciones. Mas cuando por circunstancias especiales no se ha de proceder a operar inmediatamente después de tomadas las radiografías de las cavidades ventriculares, puede aplazarse el acto operatorio con solo llenar una condición esencial consistente en evacuar el aire contenido en los ventrículos y sustituirlo por suero fisiológico lo cual es muy fácil y seguro de hacer sin modificar la presión interior haciendo uso nuevamente de la doble jeringa que permite tomar el suero de un recipiente, introducirlo a una cavidad ventricular en cantidad rigurosamente igual a la del aire que sale por el otro trocar y el cual una vez expulsado totalmente, dará paso al propio suero que inyectado por un lado, sale por el otro sin cambiar su presión pues solamente es removido en el interior de la cavidad ventricular.

En estas condiciones hemos podido ver que los peligros no raras veces mortales que amenazan a estos pacientes, ya tan delicados por la propia naturaleza de su mal, han desaparecido seguramente en una proporción muy importante.

No es posible dejar pasar inadvertida la siguiente consideración: El cambio de líquido céfalo-raquídeo por aire mediante el procedimiento descrito, se verifica por la salida y la entrada de cantidades iguales posibles de medir en las jeringas; la presión sin embargo debe variar aunque sea en muy pequeñas proporciones puesto que el aire al ponerse en contacto con las paredes de las cámaras ventriculares adquiere una temperatura mayor que la del medio ambiente lo cual debe producir un aumento en su volumen que si bien no ha resultado clínicamente apreciable, teóricamente si es de tenerse en cuenta.

Lo ideal desde este punto de vista sería realizar un desideratum que ha ocupado la atención de todos los que trabajan en estas cuestiones y que consiste en encontrar una substancia soluble en el líquido céfalo-raquídeo, opaca a los rayos X, no irritante, no tóxica, es decir de reacción neutra que por remoción del líquido céfalo-raquídeo hecha con el dispositivo de doble jeringa cuyo funcionamiento ilustraré enseguida con una película, y por la mezcla de dicha substancia con el propio líquido, este se tornará también opaco al rayo X con lo cual podrían obtenerse los mejores resultados desde el punto de vista de que no se causarían al paciente ningunas molestias y por otro lado se obtendrían imágenes perfectas cuyos contornos, forma, volumen, desplazamientos etc. serían posibles de interpretar con las mayores seguridades.

Esto lo tenemos en estudio a investigamos actualmente las posibilidades de realización utilizando algunas sales de metales raros con el fin de hacer de la trépanopunción un procedimiento útil e inocuo en la forma más estricta no obstante que consideramos que dicho procedimiento de exploración, va a ser muy pronto desalojado por las exploraciones de los potenciales eléctricos cerebrales, con las cuales hemos podido establecer diagnósticos de una precisión aún mayor que los hemos obtenido con el estudio de las cavidades ventriculares del cerebro.

Sin embargo la trépano-punción aún conserva su caracter de procedimiento clásico en tanto que la electro-encefalografía va abriendo su camino y mientras no se acredite en forma rigurosa y

exacta, habrá que seguir echando mano todavía de los diversos procedimientos de neumoventriculografía.

SUMARIO

La modificación a la técnica del ventriculografía, motivo del trabajo, se refiere a que una vez hecha la punción ventricular evitando que escurra el líquido por ninguno de los dos trocars, se conecta a uno de ellos un ajuste que por medio de un corto tubo de cauchu comunica al trocar con un sistema valvular aspirante e impelente el cual va montado sobre una jeringa de dos c.c. Lo mismo se hace con el segundo trocar. Ambas jeringas van montadas sobre un dispositivo que permite accionarlas sincrónicamente pero inversamente lo cual se consigue hacer con una sola mano. Una de estas jeringas mediante su juego valvular toma el líquido céfalo-raquídeo a través del trocar ventricular y lo arroja hacia afuera pudiendo ser recogido en un tubo de ensayo; la otra toma aire del exterior y lo inyecta a través del otro trocar, al interior del ventrículo sustituyendo el líquido que va saliendo por cantidades exactamente iguales de aire.

Como la punción ventricular doble obliga absolutamente a comprobar la permeabilidad del agujero de Monro, una vez colocados los dos trocares en su lugar, la operación de cambio de líquido por aire se nicia siempre cargando la jeringa que inyecta el aire con una solución colorida (índigo carmín) en pequeña cantidad, medio c.c. que al accionar las dos jeringas inyectando primero éste, aparece rápidamente en el líquido extraído y puede continuarse la operación hasta que se agote el líquido céfalo-raquídeo del ventrículo correspondiente y por tanto de todo el sistema ventricular. En caso de que el color no aparezca en el líquido al segundo o cuando más al tercer jeringazo, de debe hacer doble punción en el ventrículo inyectado con el color, para hacer el cambio de líquido por aire con la doble jeringa a través de dos trocares colocados en el mismo ventrículo. Se repite la operacíon del lado opuesto. La apariencia clínica de los pacientes sometidos a la ventriculografíca en catorce casos en los cuales ha sido empleada, parece indicar que la tolerancia del aire introducido en esta forma, al interior del sistema ventricular, es grande, lo cual se ha podido observar en aquellos sujetos que no han sido sometidos inmediatemente después a la intervención quirúrgica y en los que, por otro lado, se ha dejado el aire a que sea absorbido espontaneamente.

RÉSUMÉ

La modification à la tecnique, motif du travail, se rapporte à ce qu'une fois faite la ponction ventriculaire, évitant que le liquide s'écoule par aucun des deux trocarts, on connecte à l'un d'eux le bout d'un petit tube de caoutchouc qui comunique le trocart avec un système valvulaire aspirante et impelant lequel a été assujetti à une seringue de deux c.c.; on fait le même avec le second trocart. Les deux seringues son assujetties sur un dispositif qui permet actionner avec elles, syncroniquement mais inversement en même temps, ce qu'on peut faire avec une seule main. Un de ces deux seringues au moyen de son jeu valvulaire, aspire le liquide ventriculaire à travers le trocart et le jette au dehors, pouvant être mis dans un tube d'essai; l'autre prend l'aire de l'extérieur et l'injecte à travers de l'autre trocart à l'intérieur du ventricule, substituant le liquide qui sort par desquantités égales d'air.

Comme dans la ponction ventriculaire double il faut absolument constater la perméabilité du trou de Monro, une fois que le deux trocarts sont mis à leur place, l'opération du changement de l'air à la

place du liquide commence toujours en remplissant la seringue qui injecte l'air avec une solution colorante (indigo-carmin) en petite quantité (½ cm. 3) qui, en travaillant les deux seringues, injectant d'abord celui-ci, apparaît rapidement dans le liquid extrait et l'opération peu continuer jusqu'au moment où le liquide céphalo-raquide du ventricule correspondent s'épuisse, et naturellement aussi celui de tout le systême ventriculaire. Dans le cas ou après le deuxième ou, tout au plus, au troisiême coup de seringue la couleur n'apparaisse dans le liquide, il faudra faire une double ponction au ventricule injecté à la couleur pour faire le changement de l'air au lieu du liquide avec la double seringue à travers de deux trocarts placés dans le même ventricule. On répète l'opération de l'autre côté. Les résultats cliniques obtenus sur les malades soumisa la ventriculographie, sur les quatorze cas dans lesquels on l'a employée, parait indiquer que la tolérance de l'air introduit dans cette forme à l'intérieur du systême ventriculaire, est bien grande comme on a pu l'observer sur les malades qui n'ont pas été soummis inmédiatement après, à l'intervention de la chirurgie et d'autre part sur ceux dans lesquels on a laissé que l'air soit absorbé spontanément.

Выводы

Автор предлагает следующую модификацию вентрикулографии: Каждый из двух желудочных трокаров соединен посредством резиновой трубки с клапаном шприца содержащего 2cc. Оба шприца укреплены и поставленны так, что их можно оперировать своевременно одной рукой, и так, что в то время как один шприц высасывает ликвор, другой вдувает в желудочек столько-же воздуха.

С целью определить проходимость дыры Monroe, операция начинается вспрыскиванием через шприц 0.5cc раствора индиго кармен, который должен быстро появиться в высосанном ликворе. Эта процедура продолжается пока весь ликвор не заменен воздухом. Если хирург не получит окрашенной жидкости после высасывания раза два или три, то он обязательно должен сделать двойную пункцию желудочка наполненного окрашенным раствором и заместить его воздухом. То-же нужно проделать на противуположном желудочке. Клиническое течение у 14-ти пациентов потверждает мнение автора, что эта модификация пневмовентрикулографии делает пациентов более резистентыми к вздуванию воздухом. Это особенно было замеченно у пациентов, которые не сейчас были подверженны операции и где воздух самопроизвольно высасывался.

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Adult Tissue Extracts in Promotion of Wound Healing*

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THE theoretical basis from which these experiments were developed was provided by Carrel,[1] who showed that various kinds of adult as well as embryonic tissues were capable of greatly activating the multiplication of cells *in vitro*. Stimulated by those studies a number of authors (Carnot, P. and Terris, E.,[2] Roulet, F.,[3] Wallich, R.,[4] Kiaer, S.,[5] Schloss, W.,[6] Nakamura, T.,[7] Morosow, D. and Striganova, A.,[8] Nielsen, E.[9]) also made attempts to effect the closure or accelerate by local application of embryonic extracts the healing of wounds in which normal healing was poor or retarded. The results of these experiments were invariably the same, in that the influence of all those substances was found to be extraordinary in experimental animals as well as in the human subject. The latest contribution to the question was made by Waugh[10] who reported very satisfactory results with epicutan—a substance in which the active fractions of embryonic extracts were bound to kaolin by absorption.

The main disadvantage of the above method is the great difficulty in procuring the embryonic material necessary for the preparation of the extracts. A more accessible source was therefore necessary. It had been shown[11] that extracts of adult tissues might also be used to advantage on account of the remarkable cell-growth promoting activity they develop. Such cell-growth stimulating factors are almost universally available and can be obtained from practically any kind of tissue. Under certain experimental conditions the potency of one or the other of those extracts (brain, heart, smooth musculature) may be up to three times as high as that derived from an embryonic source. The effect—as may be concluded from *in vitro* studies—is not bound to the species; *e.g.*, extracts from the hearts of chickens or sheep are able to promote considerably the growth of human epithelium *in vitro*.

The above consideration led Doljanski and co-workers[12] to suggest the employment of adult tissue extracts as a means of influencing the healing of wounds. It was as a result of that suggestion that the clinical experiments reported upon were undertaken.

During the first phase of our studies wound healing through saline extracts prepared from the hearts of adult chickens was attempted.

THE EMPLOYMENT OF ADULT TISSUE EXTRACTS TO EFFECT OR ACCELERATE THE HEALING OF WOUNDS

Extraction Technic. Observing all precautions for sterility, the hearts were removed from the bodies of animals that had just been killed and then ground in

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the Latapie apparatus. The tissue mash was then mixed with five times its volume of tyrode solution, shaken for an hour and allowed to stand in the refrigerator over night. The mixture was then centrifuged. Extracts prepared according to this method can be preserved on ice for weeks.

Technic of Application. Infected wounds were treated with sulfanilamide prior to applying the extract. In its application, the moist-chamber method was used. The wound was covered with gauze soaked in the extract, which was changed every day or every second day. If the center of the wound had a torpid appearance without development of fresh, bleeding granulations, the wound surface was scarified with a scalpel before institution of the extract treatment. Where too active granulations provided an obstacle for the advancing epithelial seam, they were scraped away with a sharp spoon. Hemorrhage was controlled by compresses soaked in warm NaCl or Ringer solutions.

Results. The practical part of the work was entrusted to Dr. Schloss who will give a detailed account on its progress elsewhere.

Table I

Category	No. of Cases	Healing effected	Improved	Unchanged
A	19	13	3	3
B	15	12	3	—
C	24	10	8	6
Total	58	35	14	9

The following review of a number of cases is quoted from his publication: *Category A:* 18 cases of wounds and ulcers caused by trauma (mechanical, chemical, irridatory, etc.). In 13 of these cases, which appeared particularly resistant to other forms of treatment, complete closure was brought about by adult tissue extract. There was considerable improvement in 3 cases, while 3 others were not influenced.

Category B: 15 cases of chronic varicose ulcers. Of these, 12 healed with firms scars and 3 showed improvement.

Category C: (1-4) 24 cases. Owing to the small variety of material of this group, the results, no matter whether positive or negative, appeared inconclusive. However, interesting and valuable experience upon the efficacy of the adult tissue extract could be gathered.

(1) Five cases of osteomyelitic ulcers: Of these, 3 healed, 1 was improved, 1 remained unchanged. Of 3 cases of chronic ulcers with underlying tuberculosis, 1 healed, 1 showed improvement, while the 3rd was not influenced.

(2) Ulcers due to defective circulation (4 cases): One healed, 2 improved, and 2 remained unchanged. Diabetic ulcers (2 cases): None healed; 1 improved, 1 remained unchanged. Trophic ulcers (2 cases): One healed, 1 remained unchanged.

(3) In 4 cases of phagedenic ulcer the extract treatment was tried in addition to the usual therapy. No obvious influence on the bacteriological condition was noted; but in all 4 cases, in spite of severe infection, vigorous stimulation of the granulations could be observed. In 2 cases even lively proliferation of an epithelial zone into the infected area took place.

(4) Four cases of resistant ulcerations after burns: Two healed with a

particularly soft scar, 1 showed considerable improvement, while 1 was only temporarily influenced.

DRY POWDERS PREPARED FROM ADULT TISSUE EXTRACTS

Although, from a practical standpoint, the results yielded by saline adult tissue extracts were definitely positive, a general adoption of this method might meet with difficulty. The actual preparation of the saline extracts is rather a simple procedure, but very strict observance of sterility throughout the entire process is a prerequisite. The extracts have, moreover, to be kept sterile and in a cool place and their preservability is limited.

We, therefore, proceeded to study the method devised by Werner and Doljanski,[13] who isolated certain fractions from the tissue extracts and prepared them in the form of a dry powder.

Preparation of the Dry Powder. According to the method devised by Werner and Doljanski the hearts of adult animals (chickens or sheep) are passed through a mincing-machine, following which five times the volume of Ringer solution is added. This tissue emulsion is then shaken for an hour, allowed to stand in the refrigerator over night and centrifuged. The supernatent fluid is precipitated with four times its volume of alcohol and the precipitate dried *in vacuo*. The dry material is then finely mortared and taken up with ether. After standing an hour it is centrifuged and the remaining ether allowed to evaporate. Up to the ether stage the entire procedure needs no attention to sterility. (The alcohol precipitations obtained in this way are—to some extent—soluble in tyrode solution. In *in vitro* cell cultures this solution shows a very high cell-division promoting potency and is by no means inferior to the original extracts.)

Technic of Application. A thin layer of the powder is applied to the wound surface, followed by a thick layer of dermatol powder. The surrounding skin is covered with some neutral ointment. In case of infection the tissue powder is mixed with sulfanilamide (Grubbs).

Table II

	No. Cases	Success	Failure
1. Nonhealing wounds after traumatism, injuries, accidents, shot wounds	9	8	1
2. Varicose ulcers	7	6	1
3. Osteomyelitic ulcers of the skin	2	2	—
4. Various types of ulcers (trophic, in Burger's disease, after burns, bites)	5	1	4
5. Special cases (scalping, electrical injury, noma)	3	3	—
6. Postoperative wounds (3); postoperative wounds after continued fractures (2)	5	5	—
7. Dry powder treatment instead of plastic operations	5	5	—
Total	36	30	6

Every second day dressings are changed, but care should be taken that the adhering parts of the gauze are cautiously removed by rinsing with NaCl

Fig. 1. (a) Large vericose ulcer, Oct. 22, 1941. (b) The same ulcer on Oct. 28, 1941. (c) The same ulcer on Dec. 17, 1941.

solution. In some cases scarification or mechanical removal of a surplus of granulations may become necessary (see above).

Results. A total of 36 cases, grouped as follows, were treated with tissue powder: (1) Chronic wounds which refused to heal or did not respond to other methods of treatment, 26. (2) Operation wounds, 5. (3) Cases in which, for experimental reasons, the dry powder method was employed instead of the usual procedure of grafting, 5.

In one of the cases (scalping, see Fig. 4) dry powder treatment was combined with Pinch grafts.

In Table II cases are grouped according to diagnosis, on the one hand, and success or failure of the method on the other.

As to the classification of the cases in the above table it should be pointed out that the "successful" cases were those where it was possible within a reasonable length of time to effect the healing of wounds which had been present for

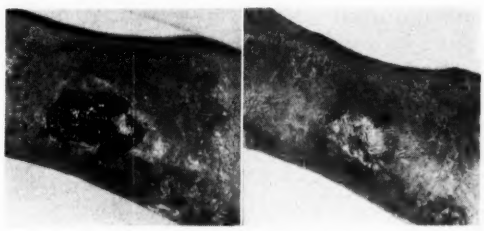

Fig. 2. (a) Varicose ulcer in a man aged 50. The ulcer has been open for three months. (b) Healing after 10 days' treatment.

weeks, months or even years and had all the time refused to respond to any other method of treatment. "Failures"

Fig. 3. (a) Trophic ulcer on the sole of the foot, caused by gunshot wound in the sciatic nerve. The ulcer has been open for three months in spite of treatment. (b) Healed ulcer following 18 days' treatment.

Fig. 4. (a) Scalping due to industrial accident. (b) The right portion of the wound following treatment with powder shows an epithelial seam much wider than in Fig. 4c. The pinch grafts, applied to the wound after three weeks, are coalescing. (c) Left portion of the wound, untreated with powder, shows narrow epithelial seam and isolated pinch grafts. (d) Continuous epithelization in the powder-treated portion. (e) Epithelization advancing at an incomparably slower rate than in 4d.

are those where no healing could be effected in reasonable time or where after initial closure the wound burst open again.

In *Category 6* "success" indicates that closure of the skin defect could be achieved. In *Category 7* it indicates healing of the wound under powder treatment where otherwise plastic methods would have been employed.

The description of Cases 1-4 may be omitted. We are only giving the photographs of a large varicose ulcer and of one of normal size (Figs. 1, a and b, and 2, a and b). There is further a photo of a soldier with a gunshot wound of the sciatic nerve who developed a trophic ulcer in a perfectly anesthetic area of the skin. Closure of that ulcer also took a few days (Fig. 3, a and b).

CASE REPORTS

The following case reports and illustrations refer to *Category 5:*

Case 1. Complete scalping due to industrial accident. The importance of this case for us lay in the singular experimental condi-

Fig. 5. (a) Open carpo-metacarpel joints following electrical injury. Start of powder treatment following three months with no progress in healing. (b) Twenty-one days after start of treatment. Almost complete closure of all wounds.

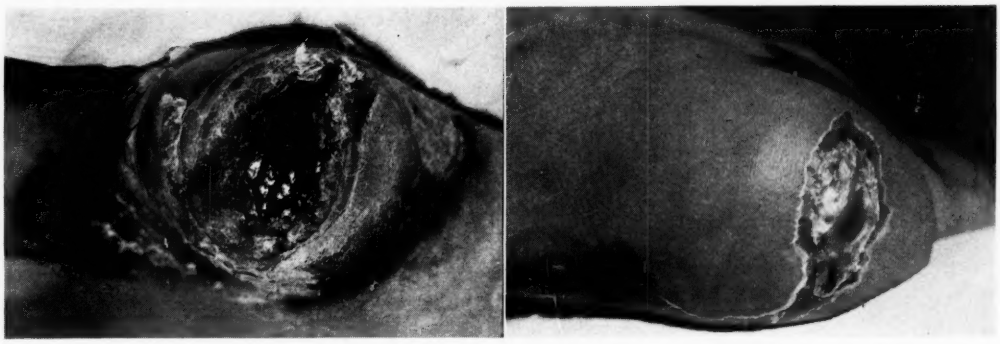

Fig. 6. (a) Left foot, three months after injury, before institution of powder treatment. (b) The same foot after sixteen days of powder treatment.

Fig. 7. (a) Untreated noma in a child. (b) Same child after twenty-seven days of treatment.

tions it provided in that one part of the wound, the right edge, was treated with powder, while cod liver oil ointment was applied on the left edge. After the lapse of three weeks, epithelization on the right portion of the wound was 1½-2 cm., while on the left the maximum width of the epithelial seam was ½ cm. Later pinch grafts were put on the wound surface. In those places where powder treatment was simultaneously continued, the number of grafts that actually took was, to begin with, greater than elsewhere. Here communications between the individual pinch grafts soon developed, which were, however, absent in places which had been left untreated. This case merely served as a clinical experiment; no complete healing could be effected (*Cf.* Fig. 4-4e).

Case 2. Severe electrical injuries (14,000 volts) on the chest, both arms, hands and legs had been treated elsewhere for three months, but during all this time no progress

Fig. 8. Right hand of patient No. 5. Syndactylism between first and second finger of right hand. Separation. After abduction of thumb one sees deep rhomboid wound treated with powder from the beginning. (b) Same patient fourteen days later. Syndactylism did not recur.

in the healing of the wounds was recorded. The inscription on every photo gives information on the time that had elapsed from the day our treatment was started. The closure of the extensive arm wound (23 x 7 cm.) within seven weeks was particularly impressive (Figs. 5-6b).

Case 3. Noma in a child. Closure of the wound of the soft tissues was effected within a period of twenty-seven days from the start of our treatment (*Cf.* Fig. 7, a and b).

Category 6. The two cases included in this category presented severe, open comminuted fractures of the upper arm and forearm, in both cases caused by a motor-car accident, which had been placed in plaster-of-Paris dressings and left there for some time, after excision of the wound, partial suture and reposition of the bone fragments. As is frequently seen in cases of this kind, removal of the splint reveals sufficient healthy granulations but not the slightest evidence of epithelization. The usual ointments had no or only very little effect in these cases.

In the one, when the powder treatment was started, the wound was 11 cm. long and 2½ cm. wide. After twenty-four days, closure was complete with a firm but well movable scar.

In the other case it was 7 x 3 cm. There was complete healing within a fortnight.

The three postoperative wounds were selected for the particular stubbornness with which they refused to heal. One had burst open again after radical operation for mammary carcinoma. In the second the wound was of a particularly torpid type and had developed when the operation wound (inoperable rectal carcinoma) of the abdominal wall had reopened, while the third had occurred in connection with the second phase of an operation for cryptorchidism, where a scrotal defect (2 cm.²) had developed.

In none of them were the customary methods of treatment (Peru balsam, cod liver oil ointments, rivanol compresses, lapis ointment, etc.) of any avail. Here the decisive factor was not so much the size of the skin defect, but the entire absence of any healing tendency. Powder treatment effected closure after 16.6 and 10 days respectively.

Group 7, *Case 1.* In a 9 year old boy a flexion contracture of three fingers had developed from infection of the palm. We separated the callous tissue horizontally with a knife on the level of the three finger joints. Stretching of the fingers produced large rhomboid wounds

of a type that is usually attacked by grafting, while our procedure was to apply the powder only, immediately after the operation. Perfect healing was achieved in the course of ten days and the hand restored to normal function.

Cases 2 and 3. Encouraged by the satisfactory results of the treatment in the first case, we selected two other perfectly identical ones from among our outpatient material and proceeded in exactly the same manner (after transverse incision and stretching of the fingers) as in *Case 1.* Healing was accomplished within sixteen and twenty-five days respectively and the hands restored to normal function.

Case 4 was the readmitted patient with electrical injuries in whom the scars had produced syndactylism. Here the results were also good, with no need to resort to plastic operations (*Cf.* Fig. 8, a and b).

Case 5 presented a skin defect of the cheek after operation for extirpation of the eye, which is usually closed by grafting. Under powder treatment, the defect disappeared within 10 days (size of the wound 5½ x 3 cm.).

CONCLUSIONS

Reviewing the clinical results of the method, we see that it was successful in 65 out of 94 cases. It is our impression that the effect concerns the formation of fibrous tissue and—probably even to a higher degree—stimulation of epithelization. Results were particularly convincing where it was preëminently the absence of epithelization that delayed the healing of the wound. Thus it is, for example, always surprising to see how, after wounds have been under plaster-of-Paris dressings for some time (*e.g.*, severe open comminuted fractures or gunshot fractures of the extremities) granulations have generally developed excellently while, however, epithelization is entirely absent. In cases of that type our method was particularly successful.

But there were also a number of varicose ulcers which, having stubbornly resisted any therapeutic attempt for months or even years, could almost invariably be closed within a period of a few weeks.

Twenty-nine out of a total of 94 cases were failures. It is, however, worth mentioning that after bacteriologic examination, no virulent germs could be identified on their surface. Infection, therefore, was certainly not the cause of the failure to heal in those cases. Others were tested for vitamin C deficiency, but also with negative results. Vitamin C, therefore, cannot be held responsible for the failures either.

DISCUSSION

Although for three decades now much attention has been devoted to the question of whether wound healing may be accelerated by local application of cell-division promoting factors, no solution to the problem has yet been offered. Where such attempts were made the conclusions drawn were based on a very small number of clinical cases and so lost their value.

The problem was approached from two directions. On the one hand, the local application of cell-division stimulating factors was intended to accelerate the normal healing of wounds, while, on the other hand, the method was to serve the purpose of effecting the closure of indolent wounds, *i.e.*, wounds with no healing tendency. In either case it is, however, very difficult to form an opinion on the efficiency of one or the other therapeutic method.

To measure the acceleration of the normal healing process would require a criterion not at our disposal from which to judge the speed of healing. Earlier attempts (chiefly by de Nouy) must now be considered obsolete. A variety of local or general factors may be active in delay-

ing the normal healing of wounds. Any attempt to include the total of them in a formula is—at least at the present stage—doomed to failure.

The so-called "indolent" wounds constitute a major problem so far unsolved. There are external factors (climate, diet, care, rest) and the internal ones (internal diseases, intercurrent acute or chronic disturbances, endocrine disorders, diseases of the blood, deficiencies, vascular diseases), and eventually local factors (infection, the localization of the wound, blood supply, excessive granulations). If closure is rapidly effected by the institution of a certain therapy in a wound which has previously showed no healing tendency, we are fully justified in considering this a positive result of the method employed. In the great majority of our cases, therefore, local stimulants to all appearances accelerated the healing of the wounds or effected their closure. A large number of wounds refuse to heal for reasons perfectly incomprehensible to us. Every indolent wound has its own intricate history, which alone determines the particular course healing is taking in that case. Here the establishment of norms would be even more absurd than in the first category.

Either in wounds in which the healing process calls for acceleration or in the indolent type, the value of a particular therapeutic method can be judged solely from outward appearance. The value of these experiments, therefore, depends on accuracy of observation and the amount of material at the physician's disposal.

The present report can only be considered a contribution to the compilation of data so necessary for the solution of the problem of influencing wound healing by local application of cell-division stimulating factors.

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RÉSUMÉ

Les extraits de tissu adulte employés pour activer la division cellulaire ont été employés avec succès pour effectuer et pour accélérer la cicatrisation des plaies. L'auteur décrit la manière d'extraire et d'appliquer les extraits tissulaires et les poudres sèches qui en sont dérivés.

Des résultats positifs furent obtenus dans les cas d'ulcères diabétiques, ulcères trophiques, ulcères trophiques dus à des troubles circulatoires et aussi dans des ulcères résultant de brûlures; néamoins les poudres desséchées des extraits tissulaires adultes nous donnent les résultats les plus satisfaisants nous ayant obtenu 65 guérisons dans 94 cas.

SUMARIO

Extratos de tejidos adultos, cuando usados para estimular y promover la cura de heridas, han demostrada su eficacia en accelerar el proceso curativo.

Procedimientos técnicos son presentados para la extracción y aplicación de

los extractos de tejidos y de polvos secos preparados de los extractos.

Los resultados obtenidos con el uso de extractos de tejidos adultos han sido positivos en casos de heridas traumáticas y úlceras, úlceras varicosas crónicas, úlceras osteomialíticas, úlceras causadas por deficiencia circulatoria, úlceras diabéticas, úlceras causadas por malanutrición, úlceras y ulceraciones que resultan de quemaduras.

Aun más, los polvos preparados de los extractos de tejidos adultos, dieron mejores resultados, completando la cura de heridas en 65 de 94 casos.

Выводы

Экстракты созрелых тканей значительно ускорили заживание ран. Автор описывает технику приготовления экстрактов и их применения в виде порошков.

Благоприятные результаты были полученны в лечении экстрактами язв травматических, при хронических варикозных язвах, при язвах диабета, при трофических язвах и при обжогах.

Сухие порошки дали найлучшие результаты, давая заживание в 65 из 94-х случаев.

NINTH ANNUAL ASSEMBLY
UNITED STATES CHAPTER

The Medical Profession
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Assembly of the United States Chapter
of the
International College of Surgeons
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October 3-5, 1944
Benjamin Franklin Hotel

Suturing Infected Wounds of the Face

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THE suturing of infected wounds of the face has not been a problem of great importance in the past, and consequently the literature to be found on this subject is very meager. Today, conditions brought about by the present conflict have given this subject a place of great importance. I refer in this paper to the wounds that communicate with the nasal cavity and the mouth.

During the past five years in the San Felipe Hospital of Tegucigalpa I have tried various technics in an endeavor to solve some of our own particular problems of time and space; and these experiences and the results obtained seem important enough for presentation under present conditions.

Patients with wounds of the face come to San Felipe Hospital from two to six days following the injury, depending upon the distance they have to cover to get there. Usually they have received nothing but home treatment, and the wound is covered with dirty rags. The wounds vary from the severely contused and lacerated wounds produced from falls (Fig. 1, a and b) to the common clean-cut machete wounds.

The common incised machete wound is typical. The wound is produced by very long and sharp knives, called machetes in Latin America and bolos in the Philippines. The machete is used as an agricultural implement, as a household tool and as a popular weapon. The wound produced in a hand-to-hand fight is usually on the side of the face, diagonally from the left eye to the right of the chin, or on the center of the face and vertically from the eyes down to the chin. The knife, after cutting through the soft tissues, imbeds itself in the bones of the face and has to be pried loose. These wounds communicate with the nasal cavity and the mouth. This weapon is being used in jungle fighting, and without doubt similar wounds are common on our battlefront.

By the time these patients come to us, hemorrhage has been stopped and infection has set in. The inflammation varies from the acute to the subacute. It may be stated at the beginning that the various technics and treatments given by excellent texts have been evaluated. Bailey's[3] definite principles for the management of the infected war-wound have been studied as they apply to our problem. There is little variance of opinion as to whether or not the wound should be closed; the experiences of war surgery by Cochrane,[9] Odelberg,[19] and Weddell[30] may be summed up in the statement that a comparatively quiescent wound can best be treated by watchful waiting. The most common method of treating these wounds has been the cleansing of the wound, removing foreign matter, irrigating it and packing gently to allow it to heal by granulation. This is a long process at best, requiring time and care and leaving unsightly scars that require plastic treatment. These methods have

Fig. 1. (a) Wound of the face seen four days after injury. (b) Another aspect of the same patient. (c) Good cosmetic results following immediate suture. (d) Showing the small scars following immediate suture.

been discontinued, and in their place the procedure here outlined has been followed. It has reduced time and care to a minimum with good results.

TECHNIC

It is assumed that the general condition of the patient receives immediate consideration, inasmuch as these infected wounds are most often encountered in individuals of unknown resistance and in adverse circumstances. Either under local or general anesthesia the wound is cleaned; only the obviously

dead tissues and foreign bodies, the pieces of bone that are totally detached from the periosteum, as well as broken or very loose teeth, are removed. Ligation of bleeding vessels may be done at this time.

If the wound does not perforate into the nasal cavity or the mouth but only into the soft tissues of the face, *the wound must be continued into the nasal cavity, the mouth, or both.* A good connection must be established into these cavities if the tissues of the nose, lips or cheeks are involved. This is important. The connection into the nose or mouth will provide drainage for infected tissue. Next a drain is placed from the wound into the nose or mouth or both. A quarter-inch 5 per cent iodoform gauze or vaselined drain may be used.

The muscles are then sutured using No. 00 or No. 000 catgut, or where traction or tension is great and the supuration profuse, stainless steel wire is used. These wire sutures may be left buried. Care must be exercised in suturing these structures that the stitch be placed sufficiently far from the cut edge to prevent sloughing of tissues. The skin is then approximated and sutured with little undercutting. Deknatel, fine silk, fine steel wire or cotton thread will do nicely. The interrupted suture is preferable. The necessary retention sutures are then placed to relieve the strain that is sure to come from pressure of the postoperative edema. It should be noted that the mucous membrane is not sutured, and when found intact, it is cut to establish drainage into the mouth or nasal cavity; further, that the muscles and skin are sutured so that healing will begin from the surface—from the skin toward the mucous membranes.

The wound of the face is painted with mercurochrome or any other mild antiseptic and left uncovered. The most marked postoperative reaction is edema; this is sometimes severe for twenty-four hours. One or two sutures may be torn unless they are well placed in sufficient numbers with strong retention sutures. This reaction is accompanied by a rise in temperature that subsides usually within twenty-four hours.

After about seventy-two hours the inflammation subsides or is altogether absent. (Fig. 2.) Drainage is well established, and the changing of drains is indicated. The patient is more comfortable than he would be with an open wound of the face, and often he is up and about. The skin sutures are left in place for approximately six days, depending on the case.

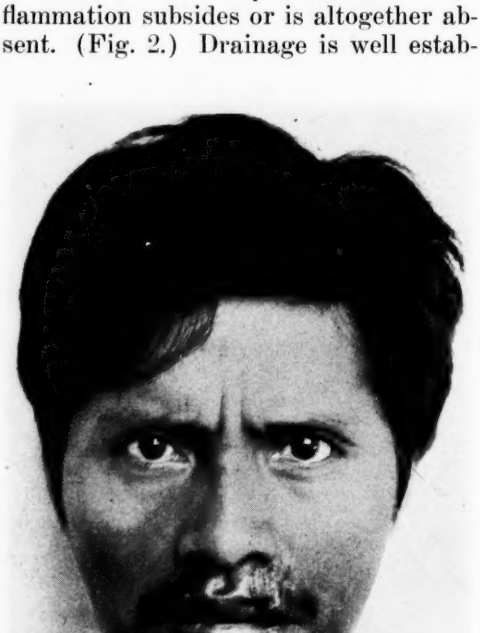

Fig. 2. Patient seventy-two hours after suturing infected wounds of the face.

Variations in procedure have been

omitted in this outline. Any number of intermediate steps are possible and are naturally indicated.

FACTORS INFLUENCING WOUND INFECTION

Altemeier[2] lists the following factors influencing wound infection: (1) virulence, types and number of contaminating bacteria; (2) the nature, location and duration of the wound; (3) the presence of foreign bodies; (4) the general condition of the patient; (5) the capacity of immunity response of the individual. Type and thoroughness of treatment determine the modifications of technic. It must be remembered that the profuse blood supply is a factor in the resistance of the facial tissues to infection.

The chemotherapeutical drugs will play a very important rôle in the control of wound infection. The use of sulfanilamide, sulfapyridine, sulfathiazole and sulfadiazine locally is recommended. The data accumulated from World War II experiences clearly indicate the local and systemic use of sulfonamides. Altemeier[2] points out the results obtained by the use of sulfanilamide locally and generally in the contaminated wounds at the Cincinnati General Hospital. He recommends its use in the control of infection.

A number of authors seriously question the effectiveness of gas-gangrene antitoxin given prophylactically. Overton,[20] however, states that it has been shown that to date the best available treatment to supplement surgery is a combination of sulfonamides and antitoxins. This is especially true of the use of antitetanic serum in every casualty with an open wound.

In the series of cases recorded at San Felipe Hospital, the simple procedure outlined has been followed, and the results obtained have been satisfactory. Infected wounds of the face may be sutured with relative safety with this procedure (Fig. 1, c and d).

In modern warfare, out in far-flung outposts, where well appointed hospitals are not the rule and wounds are seen late, where time is an important factor and personnel for long and complicated treatments wanting, this method of suturing infected wounds of the face may be of value.

CONCLUSIONS

A review of existing literature on the treatment of infected wounds of the face indicates that nearly all authors agree that certain wounds may be closed primarily but that it is best not to close any of them in military surgery. Certain principles have been laid down to be followed in the management of infected war wounds, but how to deal with a gapping, infected wound of the face has not been fully studied.

The procedure presented warrants the following conclusions: (1) The method advocated is limited in scope to wounds of the face that communicate with the nasal cavity and the mouth. (2) Incision may be required to obtain access into the nose or mouth for drainage. (3) The wound is closed only on the skin surface, leaving free drainage into the nose or mouth, which is imperative. (4) Devitalized tissue, foreign bodies, and blood clots are removed. (5) The undeniable drawback of a drain into the nose or mouth is offset by the fact that the patient is more comfortable than with an open wound of the face. (6) The course of treatment is shortened and the cosmetic results much better. In a great number of cases plastic repair is not necessary. (7) Where other methods of treatment are not practical because of lack of time and accommoda-

tions, this method will rehabilitate a man for travel or duty in the shortest possible time.

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RÉSUMÉ

L'auteur décrit une technique pour la suture des plaies infectées de la figure. Il en résume les conclusions suivantes:

1. La méthode n'est utilisable que pour les plaies de la figure qui communique avec la cavité nasale et avec la cavité buccale.

2. Une incision peut être nécessaire afin de drainer dans la bouche ou dans le nez.

3. Il importe de ne suturer que la peau afin d'obtenir un drainage complet par le nez ou par la bouche.

4. Tout tissu dévitalisé, tout corps étranger, tout caillot sanguin doivent être enlevés.

5. Il y a quelque inconvénient de drainer par le nez ou par la bouche, mais le malade en est beaucoup moins incommodé que par une plaie béante sur la figure.

6. La guérison s'effectue moins lentement et les résultats esthétiques sont bien supérieurs. Dans un grand nombre de cas, une opération plastique n'est pas indiquée.

7. Quand d'autres méthodes de traitement, faute de manque de temps ou d'installation ne peuvent pas être employée, la méthode recommandée par l'auteur rétablit le malade dans une période de moindre durée.

SUMARIO

Descríbese aquí la técnica para la sutura de heridas infectadas de la cara con las conclusiones siguientes: 1° El método recomendado se limita a las heridas de la cara que comunican con la cavidad nasal o bucal. 2° Puede ser necesario hacer incisión para drenaje dentro de la nariz o boca. 3° La herida solo es suturada al nivel de la piel superficial, dejando libre drenaje dentro de la nariz o boca, que es indispensable e imperativo. 4° Todo tejido traumatizado o severamente dañado, coagulos de sangre, cuerpos extraños deben ser removidos. 5° La innegable desventaja del drenaje intra-nasal y bocal es com-

pensada por que el paciente está más cómodo que cuando la herida en la cara está abierta. 6° El progreso de este tratamento es más breve y el resultado cosmético más satisfactorio. En el major número de casos operación plástica no es necesaria. 7° Cuando otros métodos de tratamiento no son practicables por falta de tiempo y facilidades, este procedimiento rehabilita al herido para viajar y para volver a servicio en le más corto tiempo posible.

Выводы

Почти все авторы допыскают, что некоторые зараженные раны лица можно зашивать наглухо, но что в военной хирургии это неприменимо. Существуют показания для лечения зараженных ран лица, но лечение зияющих зараженных ран лица недостаточно разработанно.

Автор предлагает процедуру ограниченную в применении к (1) случаям в которых рана сообщается с носовой полостью или ртом; (2) иногда нужно прибегать к надрезу для мого, что-бы проникнуть в нос или в рот; (3) рана зашивается только на поверхности, оставляя дренаж в нос или в рот; (4) мертвыя ткани, иностранные тела и кровавые сгусти удаляются; (5) неудобство дрена во рту или в носу компенсируется тем, что рана зашита, что более удобно, зем зияющая рана.

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The Present Status of Functional Liver Tests

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IN treating liver disease it is necessary to fully understand the mechanism of its production and the amount of functional damage which the given pathology entails. For this purpose reliable informative tests of liver function are very important.

This information can be obtained from two sources: (1) from a study of the normal functions and its variations; and (2) by the use of foreign substances, the variations of whose excretion through the liver furnishes the measure by which the general functional capacity of the liver is to be judged.

The important normal functions include: (a) the metabolism and storage of proteins, carbohydrates (glycogen) and fats; (b) bile formation and excretion; and (c) the formation, presence and variation of the substances involved in blood clotting.

(a) The metabolism of protein. This function is not shared to any appreciable degree by any other structure or organ, and the formation of the amino acids from proteins and their conversion into urea seems to be almost entirely a liver function. Normalcy of the protein metabolism has assumed in recent years a paramount position. The establishment of any degree of hypoproteinemia has been shown to be associated with moderately severe and far advanced stages of liver disease; its importance in interfering with the healing of wounds has been shown to be great; and the necessity of immediately correcting this abnormality to the normal cannot be disputed or overemphasized.

The relative proportions of serum albumin and globulin seem altered in various forms of liver disease, and the disturbance in quantitative relationship has been employed by some observers as a diagnostic test (Foley et al,[2] Snell,[9] Kirk,[4] etc.). Usually the change is a rise in the globulin fraction and a fall in the albumin. I, personally, do not believe the segregated test to be as important as the determination of any grade of total hypoproteinemia.

The carbohydrate metabolism is possessed to some degree by all muscular structures, but the liver is the great storehouse of glycogen. The galactose and levulose tolerance tests are not reliable because too many factors are involved in the mechanism of sugar metabolism. In addition, there is a wide variation in the rate of utilization of the various carbohydrates even in normal individuals.

(b) The production and metabolism of bile. The bone marrow and the spleen share this function, but again the liver is the important organ. Of the many tests suggested for this investigation, all concern themselves with basic conditions in which there is a deficiency in the production of bile (prehepatic), or more commonly, obstruction to the free outflow of the finished product from the liver (posthepatic). The chief tests of

this function are the direct and indirect van den Bergh test (a modification of the Ehrich-Diazo reaction) and the icteric index. Both of these tests can, fortunately, be used quantitatively, as they estimate the amount of bile pigment in the blood stream. A differentiation is possible in the van den Bergh reaction inasmuch as the test is direct in the posthepatic and indirect in the prehepatic types of jaundice.

The Fouchet test is similar to the van den Bergh test. The bilirubin test of von Bergmann and Eilbott is very sensitive, utilizing bilirubin itself. It is very expensive and cannot be used when jaundice is present. In any case, there are differences of opinion regarding its reliability (Harrop and Barron,[3] positive; and Snell and Plunkett,[9] negative).

The presence of bilirubin in the urine gives the same information as the van den Bergh test.

The urobilinogen test is based on the fact that urobilin, which is produced in the intestinal tract, is passed through the liver where, if hepatic function is normal, it is completely converted into bilirubin; if function is abnormal, it is excreted in the urine as urobilinogen. If no urobilinogen is demonstrable, it may be assumed that biliary obstruction is complete. If present in dilutions greater than 1 to 20, it may be assumed that hepatic damage is extensive.

Estimations of the cholesterolemia have also been used, mostly, however, in the jaundice associated with the presence of gall stones. The relationship of the cholesterol ester content of the blood to its total cholesterolemia has been found to be changed (lowering of ester content) in jaundice resulting from acute hepatic degeneration (prehepatic) as opposed to jaundice resulting from common duct obstruction (posthepatic).

(c) Study of the blood-clotting function has also assumed an important position. It includes the study of prothrombin, thromboplastin, fibrinogen, calcium and vitamin K. The knowledge of the exact mechanism of this process is still confused, but the modern tendency, as the important studies of Quick, Stanley-Brown and others[6,7] have shown, is to attribute a large part of the task to the liver. Evidence of this function is furnished in cases of hepatic injury, in which the prothrombin in the blood plasma is diminished.

Prothrombin deficiency is usually bound up with a lack of vitamin K and, clinically and pathologically, with severely damaged liver cells; bile salts are always diminished; and jaundice may or may not be present. The formation, storage and excretion of prothrombin is a very static phenomenon, and the available supply becomes rapidly depleted, especially in the absence of vitamin K and bile salts.

The disturbance of the blood clotting function is not fundamentally caused by jaundice *per se*, although it is commonly most pronounced then. The latest observations have, however, indicated that the disturbance of this function has become a very important test and that any grade of hypoprothrombinemia indicates severely damaged liver cells both in the presence and absence of jaundice and in early and late stages of the pathologic process.

The abnormal variations of each one of these functions have been used successfully as tests of liver function and as indications of disease. Other tests include: (1) the serum phosphatase test; (2) the Hanger cephalin floculation test; and (3) the hippuric acid test.

Estimations of the serum phosphatase level have also been used in obstructive jaundice, but are only of value in icteric conditions definitely associated with obstruction, for the reason that similar changes occur in other conditions also,

especially hyperparathyroidism, carcinoma of the prostate, bone tumors, etc.

The Hanger cephalin flocullation test, supplemented by the serum phosphatase test, has been used in determining the presence of liver-cell damage in the various forms of acute hepatitis as opposed to an obstructive jaundice.

One of the important functions of the liver is the detoxification of poisons, bacteria and other harmful substances. This fact has been utilized in the hippuric acid test, in which the detoxification of benzoic and amino acetic acids is accomplished by their conjugation into hippuric acid. The Quick hippuric acid test suffers from the objection that impairment can be demonstrated only after very extensive damage and that it indicates only one function of the liver. Inasmuch as the synthesis of hippuric acid may occur also in the kidney, the test should be checked from that standpoint.

There are other tests making use of the normal liver functions—the lipase test, the lactic acid test, the cinchophen test, etc., all of which have not received as much favorable comment as the others and are not in frequent usage.

Of all the dye tests of liver function, phenoltetraordophthalein has proved to be of greatest use, especially in radiography. Otherwise none of these dye tests has been of any considerable use clinically.

The total number of available tests of liver function and pathology is, then, considerable. Their complexity indicates either that no one of them has attained any universal degrees of approval, or that some of them have only a specific indication which is not always present. In many instances their use does not yield conclusive data; but the results of these laboratory investigations are clinically important in that they supplement and bolster up the clinically made assumptions of the presence and degree of severity of liver disease.

The primary objective of functional liver tests is to establish the presence or absence of disease or destruction of the liver parenchyma. At the same time the tests which utilize the normal physiologic functions and processes of the liver indicate their pathologic aberration from the normal. To be complete, the obtainable information ought to be capable of including: (1) an estimate of whether the disease and/or parenchymal destruction and its consequent physiologic disturbance is early, late and, possibly, at the borderline of insufficiency; (2) whether the disturbance is capable of being corrected; (3) the extent of such possible recuperation; (4) the potential possibility for further extension of the disease or parenchymal destruction; and (5) whether the pathologic process is irreversible.

Laboratory tests have not been as successful as we should like them to be in corroborating clinical diagnoses of hepatic disease. The tests depend on too many variable factors. The more reliable tests are too complicated or expensive for general use, except in a large hospital. Sometimes they are not suited to the particular case in question. They do not always give the desired information; and the results are sometimes ambiguous. The success of their clinical integration is variable. They are, however, somewhat more valuable in enabling us to judge the character and intensity of the underlying pathologic process, the severity and extent of the cellular destruction, and the stage of the total illness, of which there is usually abundant clinical evidence. Then, too, repeated venous punctures injure the veins which later may be urgently needed for important therapeutic purposes.

The statement of Boyce and McFetridge[1] is well taken: "that the patient's state may be extremely grave while this hepatic function remains within normal limits as one is able to measure those limits. In other words, the most accurate of tests must be permitted a reasonable margin of error, and it is possible, because of the enormous reserve capacity of the liver, for a number of things to be seriously wrong while hepatic function remains unimpaired, at least by available standards of measurement."

The interpretation of functional abnormal liver tests in medical and surgical patients, with and without clinical symptoms and without jaundice or other elicitable evidences of liver disease, as indicative of latent, early or occult liver disease, has been presented by a number of clinical observers who have corroborated these assumptions by biopsy or operative specimens, showing change of structural pattern, or in some instances by postmortem examination. Hepatic dysfunction or subclinical hepatitis, as indicated by similar tests, have been reported in other conditions—peptic ulcer, rheumatoid arthritis, skin disorders, neuroses and psychoses—by Wyler and Paulson. Nevertheless, these findings do not invalidate the others, because hepatic structural changes have on occasion been demonstrated in many of the conditions mentioned. Reliable functional liver tests, then, may have an important corroboratory function and value along similar lines in the preoperative study of surgical patients as indicating the presence of latent hepatic disease.

Nevertheless, in practical surgery, several tests are beginning to stand out because of their additional importance in indicating certain potential dangers for which we possess therapeutic preventive and/or corrective measures. These are: (1) hypoproteinemia; and (2) disturbances of the blood clotting function.

Furthermore, in practical surgery such available information has been successful in providing a proper basis for estimating the relative danger of any prospective operation. When investigation and therapeutic trial show that the pathologic process is irreversible, and when such basic diagnostic and functional laboratory information is reliable, well integrated with the clinical picture and well understood, it contraindicates absolutely any contemplated operation, necessarily useless under the circumstances, which would almost certainly be fatal.

There is, therefore, abundant need for reconsidering our entire conception of the normal and abnormal variations in determinable estimations of liver function as a help in diagnosis and prognosis of hepatic disease. It must be borne in mind that the liver, as well as all other parenchymatous organs, performs its functions by virtue of a definite and specific structural pattern. Any change in the latter must obviously cause a corresponding change in the ordinarily manifested function, with the proviso, however, that the latter, under some conditions, may not be demonstrable or recognizable for the reason that the functions are made good by an enormous compensatory effort in uninjured parts of the same organ, because of a newly assumed mechanism in the same organ, or by the assumption of any individual compromised function by another organ in the body. Functional disturbances can, therefore, only be adequately understood in conjunction with a thorough knowledge of the normal variations in injury or disease.

Age is a very important factor; and its effects must be thoroughly understood. Estimations of liver function

which would be assumed to be abnormal in younger persons (those under 55 or 60 years of age) are usual in individuals above this age. In common with the changes which advanced age causes in all other structural parts and parenchymatous organs, similar changes in structure occur also in the liver, which necessarily affect the functional capacity in a corresponding degree; and these effects must tend to give pseudo-abnormal values.

Then, again, when foreign materials are used results differ according to the method and path of administration of the foreign material, *i.e.,* whether the material is given intravenously or orally; and, in the latter method, whether it reaches the liver through the arterial hepatic circulation or the venous portal channels.

Ordinarily, the question of fatigue—using this term in its broadest sense—in the exercise of any function enters also. I referred to this many years ago in connection with the cholesterol metabolism, pointing out the successive periods of accumulation of cholesterol bodies in conditions of fatigue and the disappearance of hypercholesterolemic states in periods of vigorous activity. Mann[5] has suggested the "straining" of the liver capabilities in order to bring out minor, or less easily demonstrable evidences of change of function. This is the fundamental mechanism, perhaps, in all methods using foreign substances.

In a much too large proportion of the cases, hepatic function is demonstrably maintained by compensatory effort, as bile is still present in the stool, since there is no impairment in glycogenesis nor evidence of failure to deamidize the amino acids, in that urea formation is unhampered and a progressive increase of nitrogenous products in the blood is observed. The clinical picture of well established disease, marked by abdominal distention, vomiting, rise in temperature, oliguria, appearance of albumin, casts and red cells in the urine, increase of residual nitrogen in the blood bleeding into the mucous surfaces and blood in the vomitus and in the stool, indicates only too well the severity of the illness and the fact that coma and death are approaching. In the absence of these manifestations, and in those cases in which the previously outlined tests of liver function are not available or give no reliable information, it is imperative to know the manifestations indicating a severe and approaching fatal condition. These are as follows:

1. Severe general symptoms, especially fever and chills. This item is possibly of least importance.
2. Anorexia or vomiting beyond the temporary or mild forms observable in the early stages of extrahepatic lesions of the biliary tract.
3. Shrinkage of the liver. This does not include the shrinkage of a temporarily swollen liver back to normal size. When this evidence is reliable and indicates a decrease below normal, it becomes the most important single clinical indication of destruction of hepatic cells and impending hepatic toxemia. The ultimate stage of such shrinkage is acute yellow atrophy.
4. Increasing jaundice.
5. Any tendency to hemorrhage.
6. Diminution of the secretion of urine, not accounted for by a corresponding diminution in the intake or fluid and with or without laboratory evidence of diminished renal function.
7. Demonstration of leucine or tyrosine in the urine.
8. Retention of nitrogen in the blood.
9. Signs of disturbed cerebral function — convulsions, stupor and

coma. These are evidences of impending or established hepatic ("cholemia") or of hepatorenal ("uremia") intoxication.

In some cases in which operation has been performed, additional facts are available:

10. An operatively demonstrated cirrhotic condition of the liver. This indicates far advanced disease and one in which terminal manifestations may occur at any time. The presence of any degree of ascites only intensifies the significance of such findings.
11. Undue prolongation of postoperative vomiting for which no other competent cause is demonstrable.
12. Sudden and large diminution in the discharge of bile from an external biliary fistula, other facts and factors remaining equal and unchanged.
13. Marked diminution in the amount of bile in the stool in the absence of a discharging biliary sinus, other facts remaining equal.
14. Appearance of postoperative jaundice or any pronounced increase in previously existing jaundice.

In clinical practice, important circumstantial evidence is available which gives knowledge and can be used as a rough measure of the degree of hepatic disturbance, both anatomically and functionally. In many cases(though not all) the kidney, which after the liver is the great excretory and detoxifying organ of the body, attempts to compensate for any loss of liver function. It succeeds to a certain degree, but commonly, sooner or later it fails in this respect also, because the kidney is not fitted to handle many of the normal products of hepatic metabolism nor the abnormal toxic bodies liberated in the normal or damaged liver cell environment. The kidney promptly breaks down in its turn and becomes an important and frequently a decisive factor in the total subsequent dissolution.

The renal complication, or rather, the stage in which combined hepatorenal symptoms appear, may occur when jaundice is absent. It is impossible to say to what stage the hepatic disturbance must progress before clinical evidence of renal involvement (hepatorenal syndrome) can be obtained. Under the circumstances any significant change in the kidney could be employed, therefore, in properly selected cases, other things being equal, as a measure of the preceding clinically recognizable disturbance in the liver.

The urine may be normal; commonly, however, the usual laboratory evidence of "nephritis" is present. Various degrees of oliguria are present; complete anuria, however, never occurs. The concentration of the urine is variable. These changes are, however, in no way diagnostic, because of the protein character of such changes; nor can they be used as a measure of any disturbance.

In clinical practice, however, functional disturbance in the kidneys is best measured by the degree and extent of any accompanying azotemia. Azotemia occurs in association with the following conditions: (1) severe and protracted vomiting; (2) immoderate and severe loss of intestinal contents, either through the natural exit or through an artificially produced intestinal fistula, especially when it is present high up in the alimentary canal; (3) diabetes with acidosis, especially in the stage of coma; (4) hypofunction (Addison's disease) or experimental removal of the adrenal glands; (5) traumatic shock; (6) extensive burns; (7) acute coronary thrombosis; (8) profuse hemorrhage; (9) diseases of the liver and biliary tract such

as are under discussion in this communication; (10) circulatory failure and collapse following operation, trauma or disease.

With due regard to the above listed conditions, any degree of azotemia may be used as a measure of the severity and of the stage of any liver disturbance present. Some degree of azotemia may exist without any apparent effect on the clinical picture. In the presence of a liver lesion, however, it indicates a secondary renal lesion (hepatorenal syndrome). At times it is the first indication of an aggravation of the primary liver disease. Usually, however, there are asthenia, anorexia, vomiting and disturbances of the sensorium. Such a combination of symptoms and laboratory data indicates a very severe lesion or an advanced, late or terminal condition. And, in my experience, the level of the increased azotemia parallels the severity of the total disease. This is the value of azotemia in any liver lesion.

CONCLUSIONS

Tests of liver function are not essentially diagnostic and can only confirm previously made diagnoses of liver disease. Necessarily, no single isolated test can be of as great clinical importance as a series of repeated tests. When the test is repeated at regular intervals, the series of observations gives a picture of the changes which go on in the progression or retrogression of the liver parenchymal lesion. At the same time they furnish information about the potential risk in contemplated operations, and enable fairly accurate prognoses of the future course of events.

The quantitative condition and variation of the protinemia and the abnormal variations of the blood clotting function give the most important information. Next in order are the tests which measure the degrees of jaundice. None of the dye tests are of enough clinical importance except the phenoltetraidophthalein test, and the latter gives only radiographically its most important information of the mechanical conditions governing the excretion of the contents of the gall bladder. In the presence of such basic conditions, clinical assumptions of the pathology and disturbance of function and of the progression or retrogression of the underlying pathology must make additional use of other sources of circumstantial evidence, and of these the most important is yielded by the kidney because of secondary changes occurring therein (hepatorenal syndrome). The disturbance in the latter, especially the degree of any accompanying azotemia, can be used as a measure of the anatomic and functional changes in the liver.

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RÉSUMÉ

Les épreuves de fonction ne sont pas positivement diagnostiques et ne servent

qu'à confirmer les diagnostics faits précédement. Nécessairement, aucune épreuve seulé ne peut avoir l'importance clinique d'une série d'épreuves répétées. Quand l'épreuve est répété à des intervalles réguliers, les séries d'observation nous renseignent sur le progrès ou sur l'amélioration de la lésion parenchymateuse hépatique. Ces séries en même temps nous renseignent sur les risques potentials d'une opération projetée et nous aident à formuler un prognostic.

La condition quantitative et les variations anormales de la protinémie ainsi que les variations anormales de la fonction coagulatrice nous fournissent des renseignements d'une grande utilité. Les tests des différents degrès de jaunisse sont utiles. Nul test colorant, le phémotetra-idopthaleine excepté, ne possède une grande importance clinique et ce dernier ne nous renseigne que sur les conditions mécaniques qui gouvernent l'évacuation de la vésicule biliaire.

L'assumption clinique de la pathologie fonctionelle et anatomique des voies biliaires et du progrès ou de la rétrogression des lesions doit être basée sur les trouvailles de laboratoire et sur les examens cliniques répétés. L'examen des fonctions rénales est d'une haute utilité car les troubles hépatiques déterminent fréquemment des lesions rénales (le syndrome hépatorenal). Les lésions rénales et le degré d'azotémie présent nous aide à évaluer les changements anatomiques et les troubles fonctionnels du foie.

SUMARIO

Examenes de la función hepática no son esencialmente diagnósticos, unicamente confirman la sospecha de enfermedad hepática.

Necesariamente ningún reactivo solo, podrá ser de gran importancia clínica como son las pruebas repetidas. Cuando las pruebas son repetidas con regularidad a intervalos, las series de observaciones así verificadas revelan los cambios de progresión o de retrogradación en la parénquima del higado. Al mismo tiempo las reacciones así obtenidas sirven de conocimiento del riesgo poderoso en caso de intervención quirúrgica y permiten un prognóstico acertado de los resultados posibles.

La condición cuantitativa y las variaciones de la protinemia y las variaciones abnormales en la función de la coagulación de la sangre ofrecen importante informe.

Otros datos necesarios son los cálculos del grado o indice de ictericia.

Ninguna de las pruebas de tintes y sombras opácas tiene suficiente importancia clínica con excepción de la phenoltetraidophthalein preuba, y aún ésta sólo nos da sombras radiográficas de la condición mecánica que revelan la expulsión del contenido de la vesícula biliar.

En presencia de estos elementos básicos, la presunción clínica de la patología y de los desarreglos de función y de los cambios en progresión y retrogresión en la estructura orgánica, harán necesario recurrir a otros datos de origen çolateral, el más importante que és el riñón, por razón de los cambios secundarios que ahí se desarrollan (el síndrome hepatorenal). Los desarreglos renales, especialmente los cambios anatómicos y fisiológicos que existen en el higado nos dan ayuda diagnóstica.

ВЫВОДЫ

Пробы функции печени не имеют чисто диагностической оценки и употребляются только для дополнения раньше поставленного диагноза. Пробы нужно повторять через регулярные периоды времени для того, что-бы уметь составить представление о патологическом процессе в парен-

химе печени, для правильного прогноза будущего течения болезни и для оценки риска предложенной операции.

Количественное состояние и вариации протиенемии и абнормальныя вариеции в функции сгущения крови дают найболее указания.

Затем следуют пробы определения степени желтухи. Из проб окраской только фенольтетраидофталеин имеет клиническое значение, давая через радиографию оценку механических условий управляющих выделением содержания желчного пузыря. В присытствии таких основных условий нужно прибегать к другим приемам для оценки патологического процесса печени. Из таких, самые ценные это пробы функции почек, а в особенности изучение степени азотемии, сопровождающей патологические изменения в почках.

DUES EXEMPTION FOR THOSE ENGAGED IN ACTIVE MILITARY SERVICE

At the meeting of the United States Chapter of the International College of Surgeons held in Chicago on March 30, 1941, it was unanimously agreed by the Executive Council that Associate Members, Members and Fellows of the International College of Surgeons are exempt from payment of dues during the period of active military service.

Restoration of Walking Capacity after Paralysis of Trunk and Leg Muscles

AN OPERATION RESTRICTING THE HIP JOINT TO MOVEMENTS IN TWO AXES

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TEL-AVIV, PALESTINE

EXTENSIVE paralysis of both legs combined with partial paralysis of the muscles of the trunk renders the task of restoring walking capacity extremely difficult.

By repairing interfering muscular contractures, one nearly always succeeds in enabling such patients to stand with the aid of an apparatus. However, walking with such an apparatus, which encloses both legs and the trunk, becomes most fatiguing. In addition, the paralysis of the iliopsoas muscle prevents flexion at the hip joint. The patient is compelled to move forward by twisting his trunk around its vertical axis. This kind of propulsion is very troublesome and slow.

The gait could be considerably improved if it were possible to rid one leg of the apparatus. In this case the leg confined in the apparatus would act as support only, and the free leg could be made to swing forward with the aid of the trunk.

The realization of the plan meets with the following difficulties: A leg, completely or almost completely paralyzed, behaves exactly like the leg of a skeleton, wired as for teaching purposes. When brought to swing, it does so equally in all planes; hanging down, it assumes a position of external rotation at the hip and of moderate flexion of the knee. Thus it can be used neither for walking nor for support.

In both the paralyzed leg and the leg of the skeleton these defects can be corrected by linking the great trochanter with the bony pelvis. This does away with the external rotation and allows movement in the sagittal plane only. We applied this principle in the following case.

TYPICAL CASE

The patient, a boy aged 10, was afflicted with widespread paralysis following anterior poliomyelitis at the age of five. In its acute stage the disease led to paralysis of the whole body except the muscles of respiration and deglutition. The final stage of muscle recovery was reached after half a year. He had not walked since the beginning of his illness, being moved about in a wheel chair.

Physical Examination: In lying position the thorax and arms were well developed. There was moderate lumbar lordosis. Abdominal walls were slack. Both legs were flexed at the hip and knee joints and rotated outwardly at the hip. Both feet were in extreme equinus position. Angles of flexion were as follows: Left hip flexion 155°, abduc-

*From Beilinson Hospital.

tion 20°. Right hip flexion 160°, abduction 15°. Left knee flexion 150°, genu valgum 10°. Right knee flexion 170°. Left foot: extreme equinus position, toes bent plantarwards. Right foot: equinus pronation of the forefoot.

The patient managed to sit up only by the aid of both arms, supporting himself on the mattress and squatting in order to gain a broader plane of support. The paresis of the abdominal wall was more evident in the sitting position. A pronounced kyphoscoliosis of the lumbar spine, convex to the left side, with compensatory curves, was manifest.

The patient was unable to stand, even when supported by other persons.

Neurologic examination of the muscles was much hampered by the existing contractures. In the left leg a weak response was obtained: Mm. iliopsoas, gluteus maximus, triceps surae, flexor digitorum longus. In the right leg: weak response, Mm. tensor fasciae latae, blutaeus maximus, biceps femoris; energetic response, Mm. extensor hallucis longus, extensor digitorum communis, Mm. peronei, triceps surae, flexor digitorum longus.

Treatment: First the contractures were corrected under general anesthesia, followed by tenotomy of the left tensor fasciae latae and, in the right foot, transplantation of the extensor hallucis longus on the scaphoid bone and arthrodesis of the articulatio talocuneo-scaphoidea. After operation a plaster cast was applied, including and fixing both knee and hip joints in hyperextension.

After removal of the plaster cast six weeks later the patient was given an orthopedic apparatus, with a pelvic piece, for the left leg. Because of the lack of the right iliopsoas muscle and the weakness of the gluteus maximus no splinting apparatus was applied to the right leg, only an apparatus for the shank in order to preserve the result of the tendon transplantation and arthrodesis.

The first walking attempts showed that the right leg, which remained out of the apparatus, was not fit for walking or standing. In bearing weight the leg gave way, owing to the reasons mentioned above (outward rotation, flexion in hip and knee joints). Swung forward, the leg began to dangle irregularly; *i.e.*, the patient showed essentially the same phenomena as described above in the skeleton leg.

A strip of fascia lata links the great trochanter with the pelvis. This technic, while restricting the hip joint to movements in two axes, restores the walking capacity.

We now carried out the plan suggested initially, linking the great trochanter with the pelvis by means of a strip of fascia lata. First, a longitudinal incision was made downward from the middle of Poupart's ligament. The pec-

ten ossis pubis was exposed. A canal was drilled through the superior ramus of the pubic bone.

Secondly, a longitudinal incision was made on the lateral aspect of the thigh, starting 5 cm. above the great trochanter and running down the whole of the thigh. A strip ½ inch wide and as long as the thigh was cut from the fascia lata and left attached to its insertion above the great trochanter. Its distal end was separated from the muscle. One assistant brought the leg into extreme inward rotation, the great trochanter thus being brought to the front. A canal was drilled through the great trochanter. The free end of the fascial strip was drawn through it and thrust through the superficial layers of the Y-shaped ligament, by means of a blunt instrument, until it was brought to the incision in the pubic region. Then the strip was led through the canal in the pubic bone from the lateral to the medial side, pulled tight and brought back the same way to the great trochanter. There it was again pulled tight, so that the leg remained inwardly rotated and fixed to the periosteum (see illustration). The wound was then closed and the leg retained in inward rotation for six weeks by means of a plaster cast.

After removal of the plaster cast the leg remained in moderate internal rotation. The patient was brought to a standing position with the aid of a calliper shoe, which, keeping the foot in slight equinus position, secures a firm extension in the knee joint. This, together with the elimination of the outward rotation in the hip, fits the leg for support and weight-bearing. In swinging forward the leg describes a pure sagittal curve, as illustrated with the experiment on the skeleton leg.

Results: The act of walking observed in our patient after all these measures is as follows: The patient swings the free operated leg forward by a quick movement of the body, bearing his weight on the leg which is still included in the apparatus. The equinus position of the foot leads to a strong although passive extension of the free leg at the knee, enabling it to bear the weight adequately. The confined leg is then swung forward by means of a similar quick body movement.

It goes without saying that intensive exercises were started at once to teach the patient to make right use of his leg.

Eleven months have elapsed since the operation. The patient is steadily improving. He is now able to attend school and to walk for an hour on sandy, uneven soil without tiring. He uses two walking sticks for support.

RÉSUMÉ

Une méthode est décrite avec laquelle les mouvements qui interviennent dans l'articulation de la hanche sont éliminés. En cherchant d'améliorer les résultats obtenibles avec un apparat qui confine les jambes et le bassin, l'auteur a fait l'opération décrite dans le rapport du cas. Elle a les suivants avantages: un, malgré la paralysie bilaterale, une jambe seulement est enfermée dans l'appareil; deux, la jambe libre devient utile pour soutenir et porter le poids du corp, en oscillant en avant elle décrit une pure courbe sagittale. L'opération réduit aussi le poids de l'appareil nécessaire.

SUMARIO

Se describe un método por el cual se eliminan los movimientos rotatorios interferentes de la articulación de la cadera. El autor hizo la operación descrita en el caso que se anota, tratando de mejorar los métodos obtenidos por medio del aparato que aprisiona la pelvis y los miembros. Tiene estas ven-

tajas: primero, a pesar de la parálisis bilateral solo un miembro se coloca en el aparato. Segundo, el miembro libre se vuelve útil tanto para aguantar el soporte como el peso; al moverlo hacia delante describe una curva sagital. La operación también reduce el peso del aparato.

Выводы

Автор описывает процедуру, которая имеет следующие преимущества: несмотря на то, что обе оконечности парализованны, одна только заключенна в аппарате. Свободная нога таким образом пригодна для поддержки. Операция также уменьшает вес аппарата.

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JOURNAL OF THE INTERNATIONAL COLLEGE OF SURGEONS

Argumosa's Two Methods of Blepharoplasty

(Usually Attributed to Other Authors)*

M. MÁRQUEZ, M.D.
MEXICO, D. F.

IN A book written by me in 1936[1] I submitted definite proof that the Spanish surgeon Diego de Argumosa was the first to develop and practice successfully the two methods of blepharoplasty which the literature credits wrongfully to the eminent German surgeon Dieffenbach and the distinguished Hungarian surgeon Imre. Because the recent civil war in Spain limited the circulation of this book, I am taking advantage of the international good-will that always prevails at these meetings to again call attention to this injustice.

With reference to that type of blepharoplasty described in the text-books on facial and ophthalmic surgery as the Dieffenbach procedure, we claim, in accord with other Spanish authors, such as Calvo and Martin[2], Escribano[3], and Ribera[4], that it should be named after Argumosa, or if necessary, it may be called the "Argumosa-Dieffenbach blepharoplasty" in deference to the latter surgeon.

The above named Spanish authors, and particularly Ribera, have persistently demonstrated that Argumosa was the first to perform this operation. The latter author, in proof of this contention,

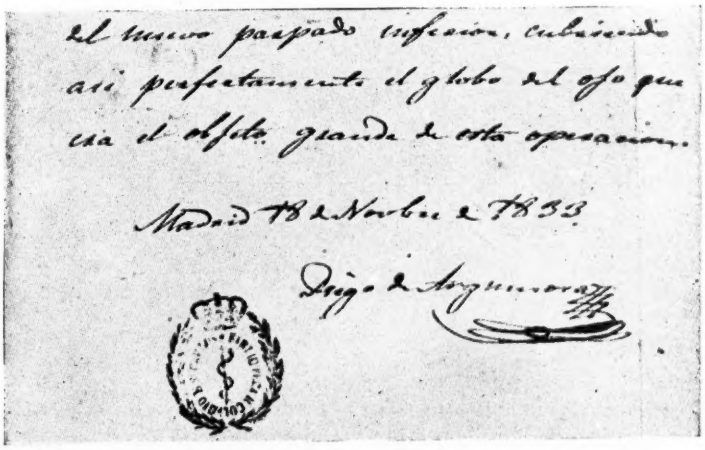

Fig. 1. Copy of Argumosa's report of his operation, signed November 18, 1833.

* Presented at the Third International Assembly of the International College of Surgeons in Mexico City, August, 1941.

submits a copy of certain paragraphs from the original report that professor Diego de Argumosa read before a public meeting of the Faculty of the College of San Carlos (The Faculty of Medicine of the University of Madrid). In that original memoir, which is still on file in the medical library (Fig. 1) and in Argumosa's own surgical papers published several years later[5], one finds definite proof that the latter author developed and practiced this procedure in October, 1832 (the day is not stated), recording and signing his memoir (Fig. 1) on this operation on November 18, 1833, and that it was finally read at a public session of the Medical Faculty on April 3, 1834. On the other hand. Dieffenbach first practiced this procedure at the clinic of Lisfranc in Paris in the year 1834, and published it in 1836[6].

defect of the lower eyelid that results from the resection of tumors in this locality by preparing a flap from the adjacent external skin area as follows: From the point *c* of the triangular defect *abc* (Fig. 2, I) either a horizontal or a slightly curved incision is made towards the temple (Fig. 2, *c d* or *c d'*), then from the point *d* or *d'* another incision is made parallel to the external edge *bc* of the excised triangle *abc* (*ed or e'd'*). The rectangular flap thus obtained (*bcde* or *bcd'e'*) is mobilized to the line *b e* or *b e'* and the whole flap is then brought inward to cover the triangular defect *abc* (Fig. 2, II) thus leaving another equally triangular defect in the outer side of the flap which is either allowed to granulate or is covered by skin graft.

In the Faculty of Medicine of the University of Madrid I found three old wax

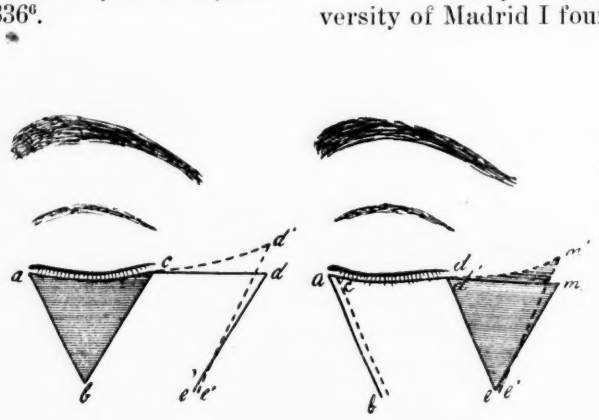

Fig. 2. Refilling and repairing inverted triangular defect of lower eyelid by preparing a flap from the adjacent external skin area.

Argumosa was, therefore, the first to develop and to officially record this blepharoplasty; for this reason I feel that it should be called the "Argumosa-Dieffenbach blepharoplasty."

This procedure consists in refilling and repairing the inverted triangular-like

models which are now on file in the library of the ophthalmologic clinic depicting the above operation, and the same may be said for a picture that is printed in Argumosa's original text-book of surgery[5]. The following technic used by me successfully in a case of congenital

coloboma of both upper eyelids and involving part of the eyebrows may be considered as a special modification of the above original procedure of Argumosa. After resection of the coloboma the triangular defect *ABC* (Fig. 3, I) was refilled by mobilizing a flap prepared as follows: A horizontal incision (1 cm.) extending lateralward (*D E*), is made from the outer commissure, then a vertical incision (*E F*) is made almost parallel to the external border (*B C*) of the defect; after joining the points (*C D*) through another incision the flap is thoroughly mobilized so that the borders of the defect are approximated and sutured (Fig. 3, II). The triangular defect left on the outer side of the flap may be allowed to fill in by granulation, since the ensuing scar will not interfere with the function of the lid. The functional and cosmetic results in this case were excellent.

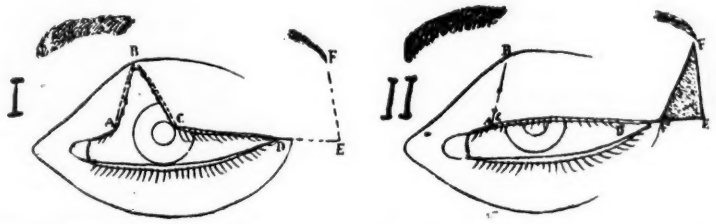

Fig. 3. Triangular defect refilled by mobilizing a flap so that borders of defect are approximated and sutured.

The second procedure of Argumosa, and named by him "geno-blepharoplasty," was developed and practiced by this author in 1832 but, unfortunately, was not made public until 1858, when he published it in his *Resumen de Cirujia*[5]. Figure 4, obtained from the above men-

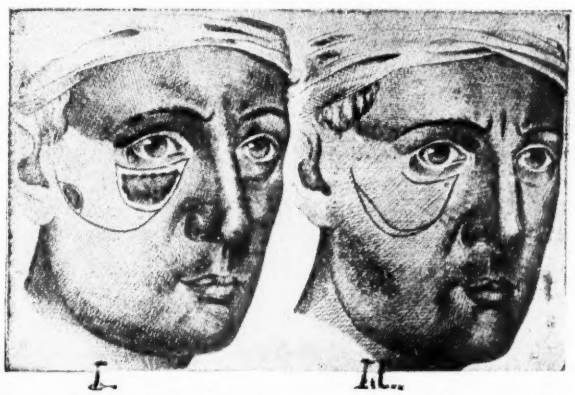

Fig. 4. Results obtained by Argumosa after mobilizing the flap.

tioned book, depicts one of the cases on which he operated for the resection of two telangiectatic tumors. The one located in the lower lid was resected by two circumscribing semilunar incisions, while the other one in front of the ear was removed with two incisions shaped like an almond, by continuing the incision resulting from the union of the last two in a curve with the concavity facing inwards and upwards until it met the internal portion of the semicircular flap. By mobilizing the flap between the two extirpated zones until the defect created is completely covered, he obtained the results shown in Figure 4, II. This second procedure of Argumosa leaves no loss of substance after the original defects are covered.

Imre's procedure[7] is somewhat similar to the above, for it only differs from it in that, whether or not there is another lesion in that region, he resects a small triangle, the so-called "Burrow's triangle" (Fig. 5, upper), which facilitates the upward and outward mobilization of the upper flap, then, by freeing outwardly the lower flap (see direction of arrows in Fig. 5), the inferior lip of the

Fig. 5. Imre's procedure resects "Burrow's triangle to facilitate mobilization of upper flap, then freeing outwardly lower flap.

fore, it could be called the "operation of Argumosa-Imre."

There is another method which I have devised by combining the Argumosa-Dieffenbach blepharoplasty with the method of Szymanowski, by reversing the latter procedure. This technic which I have used successfully to cover the de-

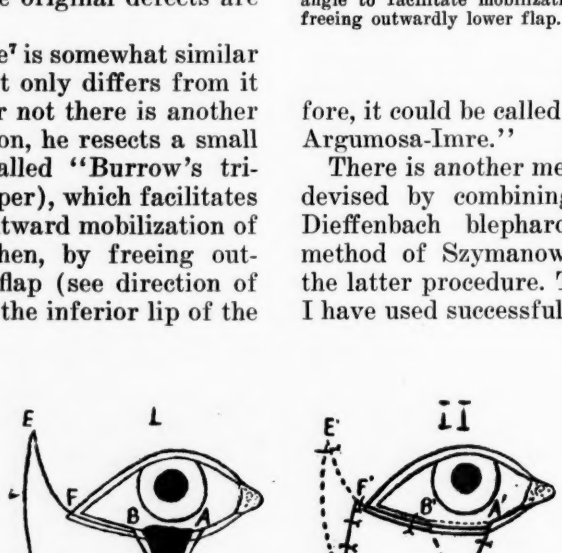

Fig. 6. Technic of reaction of small tumors of lower lid. Follow text.

small triangle can be brought into approximation with its supero-external lip, covering the created defect. As may be seen, this operation is very similar to the one performed by Argumosa; therefects that result from the resection of small tumors of the lower lid may be described as follows (Fig. 6, I): After resecting an epithelioma from the free border of the right lower lid, the tri-

angle-like area of healthy tissue (*A B C*) is extirpated; then the intermarginal incision (*B F*) is made and extended upwards and outwards, connecting the points *F E*, this latter incision being slightly curved. Next, the vertical incision (*E D*) is made and the resulting quadrangular flap (*C B F E D*) is dissected down to the level of an imaginary line connecting the points *C D*. By approximating the borders of the flap (*B F E*) to the edges (*F' B' A'*, Fig. 6, II) the defect is covered, leaving only the denuded area (*E' F' D'*) which can be considerably reduced by suturing the angles *E' D'* so that the resulting scar becomes almost imperceptible.

SUMMARY

Two methods of blepharoplasty were first practiced by Argumosa: (1) The one attributed to Dieffenbach, but which was first developed and practiced by Argumosa in 1832, and later published by him in his *Resumen de Cirujia* in 1858. His original memorandum, the last portion of which has been submitted in evidence (Fig. 1) and which describes his method, was signed on November 18, 1833, and read at a public session in the Colegio de San Carlos of the University of Madrid. Dieffenbach, on the other hand, performed this operation in Paris, in 1834, and published it in *Casper's Wochenschrift* in 1835. (2) The method described by Imre in 1930 is substantially similar to the one practiced by Argumosa in 1832, and published in his *Resumen de Cirujia*. There is thus no doubt on the part of the author that Argumosa was not only the first to perform this operation, but also the first to publish it.

The methods which I have devised for the resection of colobomas of the upper eyelid and of small tumors of the lower eyelid are but variants of the Argumosa-Dieffenbach procedure.

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RÉSUMÉ

Sans doute Argumosa a pratiqué les deux procédés suivants de blépharoplastie en 1832: (1) Celui attribué à Dieffenbach publié par Argumosa en 1858 dans son *Resumen de Cirugía*. Dans la Bibliotèque de la Faculté de Médecine de Madrid se trouve le mémoire originel, dont nous avons réproduit la partie finale, avec la date du 18 novembre 1833. Le mémoire fut lu en session publique du Collège de San Carlos de Madrid (Faculté de Médecine). Dieffenbach exécuta ce procédé à Paris en 1834 et le publia dans la *Casper's Wochenschrift*, 1835. (2) Celui décrit par Imre en 1930 est sensiblement le même qu'avait mis en pratique Argumosa en 1832 et publié aussi en 1858 dans son *Resumen de Cirugía* déjà cité. Il est hors de doute qu'Argumosa non seulement l'a exécuté, mais aussi il l'a publié longtemps avant.

Des variantes du procédé d'Argumosa sont celles que l'auteur (Márquez) a appliquées aux cas de colobome de la paupière supérieure et à l'extirpation de petites tumeurs de la paupière inférieure.

SUMARIO

Argumosa fué quien practicó primero los dos procedimientos siguientes de blefaroplastia: (1) El atribuido a Dieffenbach, publicándole en 1858 en su *Resumen de Cirugía* habiendo sido puesto en práctica en 1832. Consta archivada la memoria original (cuyo final se reproduce en el texto) con la fecha de 18

de Noviembre de 1833 habiendo sido leida en sesión pública del Colegio de San Carlos de Madrid (Facultad de Medicina). Dieffenbach la ejecutó en Paris en 1834 y la publicó en Casper's Wochenschrift, 1835, página 7. (2) El descrito por Imre en 1930 es sensiblemente el mismo que había sido puesto en práctica por Argumosa en 1832, publicado también en 1858 en su citado *Resumen de Cirugía;* no cabiendo, por tanto, duda alguna de que Argumosa no solo lo ejecutó sino que también lo publicó antes.

Del procedimiento de Argumosa-Dieffenbach son variantes las que el autor de este trabajo ha aplicado a los casos de coloboma del párpado superior y a la extirpación de pequeños tumores del párpado inferior.

Выводы

Argumosa (Аргюмоза) первым разработал две операции блефаропластики: (1) Первую, так называемую операцию Диффенбаха, которую Аргюмоза первым совершал в 1832 году и познее опубликовал ее в его Ресумен де Цируги в 1858 году. Его оригинал, который автор описывает (Фигура 1), был подписан им 18-го Ноября, 1933-го года, и был прочитан в открытой сессии в Колегио Сан Карлос Мадридского Университета. Диффенбах сделал эту-же операцию в Париже в 1834-ом году и отпечатал ее в 1835-ом году в Каспер Вохеншрифт. Метод описанный Имро в 1930-ом году почти ничем не отличается от операции Аргюмоза. Автор уверен, что первенство производства и описания операции принадлежит Аргюмозу.

Методу автора для резекции колобомы верхняго века и малых опухолей нижняго века представляют собой вариации операции Аргюмоза-Диффенбаха.

BOOKS RECEIVED

Books received for review are promptly acknowledged in this column; we assume no other obligation in return for the courtesy of the sender. Selections will be made for more extensive review, and, in most cases, review notes will be promptly published after acknowledgment of receipt has been made in this column.

Rehabilitation of the War Injured—A Symposium. Edited by William Brown Doherty, M.D., and Dagobert D. Runes, Ph.D. Articles on Neurology and Psychiatry, Reconstructive and Plastic Surgery, Orthopedics, Physiotherapy, Occupational Therapy and Vocational Guidance and Legal Aspects of Rehabilitation. $10. Philosophical Library, Inc., New York, 1943.

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Editorials

Postoperative Prognosis in Tumors of the Adrenal Cortex

SURGERY, so intrinsically entwined with the advances in every branch of medicine, promises, as in the past, to bring forth new advances. The use of new technics has made postoperative prognosis more certain and accurate following removal of tumors of the adrenal cortex. Until recently, however, the rôle played by tumor transplants in postoperative prognosis has been almost entirely unknown or neglected.

Dr. Rudolph Nissen's recent contribution gives much food for thought to the hitherto meager information on this subject.

In a paper entitled "Tumors of the Adrenal Cortex: A Procedure Whereby the Post-Operative Prognosis May Be Improved," published in *Experimental Medicine and Surgery, 1*:309, 1943. Dr. Nissen reported a case of a woman 54 years old from whom a large cortical tumor of the left adrenal gland, weighing 670 gm., was removed.

Particularly in women, there is danger of adrenal insufficiency following removal of such a tumor. Therefore, in order to improve postoperative prognosis in this patient's case, a transplantation of two small pieces of tumor tissue was effected into the subcutaneous fat near the incision in the hope that the tumor tissue graft would continue to secrete the specific hormone and prevent the fatal outcome usually resulting from profound adrenal insufficiency.

In spite of subcutaneous, intramuscular and intravenous administration of every known variety of adrenal cortex hormone before and after the operation, for the first forty-eight hours the patient did not improve and the prognosis looked gloomy. A low blood pressure, high temperature, rapid pulse and respiration, vomiting, rash on the body surface and abdominal distention were present nevertheless. Slowly the clinical picture changed, and the patient's condition became normal, after which she was discharged from the hospital. By the end of ninety days all symptoms of masculinization had disappeared.

Following the operation urinalysis revealed a drop in *a*-ketosteroids from 58 mg. to 0.7 mg. and in *b*-ketosteroids from 16.7 to 0 mg. (Dr. E. J. Baumann).

The histologic report based on slides of the suprarenal made on removal of the grafts one year later showed that the transplants had not diminished in size and had retained their characteristic morphology (Dr. P. Klemperer).

It seems reasonable to assume that

hormone was probably supplied from the transplanted tissue beginning with the second day, and its protective action carried the patient through the critical period following the operation until the opposite adrenal had an opportunity to reëstablish a hormone balance.

It may be argued that such transplants *might* become malignant; in such event radical excision may be done easily, because of ease of accessibility.

This study is an absorbing one, and further experimentation along the line initiated by Dr. Nissen may reveal the growing importance of this method in improving postoperative prognosis in certain types of tumor transplants.

Max Thorek.

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Do Urinary Antiseptics Cure Urologic Conditions?

FOR many years it has been the ardent hope of physicians and, in particular, urologists that some day a urinary antiseptic would be produced that would sterilize the urinary tract and clear up infections resistant to internal medication. One drug after another was developed after considerable travail, only to be set aside as more or less unsatisfactory and disappointing. Then came the sulfonamides, a veritable landmark in urology, and hopes again rose with the publication of the miracles performed by these drugs, particularly the successive modifications and improvements of the original sulfanilamide.

Although there is still much to be learned about these products, we have already acquired much definite knowledge of what they can do, and what is more important, we are gradually learning what they cannot do and why. Interminable painstaking studies have been made, and are still being made, which reveal the great therapeutic values inherent in these drugs, as well as the dangers involved in their indiscriminate use. One might say these dangers exist, to a lesser degree of course, even when the sulfonamides are employed with great care and caution, but we are learning how to detect the earliest signs of danger and how to combat it.

Chief among these dangers is the increased concentration of the drug in the blood, which is the direct result of the administration of heavy dosage without regard to the renal potentialities. It has been shown that a given dosage in cases with normal renal function produces no toxic symptoms; whereas the same dosage produces toxic reactions when the renal function is impaired. More recent experience, however, has demonstrated that heavy dosage is not always necessary. As Helmholz and others have shown, many infections of the urinary tract will clear up in a most satisfactory manner under minimal dosage, especially when accompanied by an adequate fluid intake.

There is little or no danger of stone formation or other damage to the kidneys from sulfadiazine, the least toxic of these drugs, when minimal doses are employed, in cases with good renal function. It goes without saying, however, that there are cases in which it is necessary to administer larger doses; but as

these cases usually are hospitalized, with facilities for the early detection of signs of danger, the risk is greatly reduced.

The problem of sulfadiazine crystal concretions still remains partly unsolved. The principal factor in this complication is the heavy concentration of the drug in the urine. This may occur either in the form of the drug itself or in its acetyl derivative. The danger of concretion formation can be reduced by increasing the alkalinity of the blood and elevating the temperature, as emphasized by Barnes. This is confirmed by the observation that with the administration of large doses in certain conditions, notably pneumonia, concretions usually appear after a fall in the temperature.

The crux of the problem involved in the use of the sulfonamides lies in the fact that there is a definite element of danger in their use unless the renal function is good. Constrictions, sharp anatomic angles, atonic ureters and similar organic conditions, by their interference with normal renal function, naturally militate against successful results with these or any other drugs. If there is a moral to be drawn or a lesson to be learned, it is that urinary antiseptics do not and cannot cure organic pathologic conditions in the urinary tract and that in all cases resistant to sulfonamide therapy diagnostic urologic studies should be made; better still, they should be made before therapy is begun. If this is done, many or all of the serious complications of sulfonamide therapy may be prevented and disappointment in the results avoided.

A. L. Wolbarst

IN MEMORIAM

Dr. Ralph A. Bowdle, F.I.C.S., of East Ely, Nevada, passed away in October of coronary heart disease. Dr. Bowdle has been a Fellow of the College since the early days of its organization.

Dr. William M. Dunn, F.I.C.S., Atlanta, Georgia, passed away on January 4. Dr. Dunn was one of the earliest affiliates of the College. He did much to further its interests in Georgia and the South. His passing removes a valued Fellow from our organization.

Difficulties of a Chinese Army Surgeon

DR. J. HENG LIU, F.I.C.S.
WASHINGTON, D.C.

CHINA has been at war with Japan for almost six years, and most of that time had over 5,000,000 men in the field. Casualties have been many, but exact figures are not available. Particularly during the first six months of the war, the number of casualties ran up very rapidly to hundreds of thousands, making the care of the wounded a very difficult task indeed. At that time China still had her transportation and her big cities, but even so, concomitant with a series of retreats and extensive migrations of the population, the transportation of the wounded and their medical care immediately became a tremendous problem. Hundreds of field and base hospitals were quickly set up, and all hospital facilities, public and private, were commissioned for military service.

It is evident that in such a rapid expansion of the medical services in the army, the quality of service had to suffer. Rush orders were sent to Europe and America for equipment and supplies, and production for those items which could be manufactured in China was stepped up. The serums and vaccines which our armies used were almost entirely produced in Chinese laboratories by Chinese bacteriologists. Cotton, gauze and bandages were for the most part produced in China. Various simpler types of equipment, instruments, chemicals and drugs were also being manufactured in China, but the greater part of the medical necessities had to be imported.

As the blockade tightened up, it became more and more difficult to bring in supplies from the outside, and their transportation, first through Shanghai, had to be routed through Hongkong, Indo-China, Burma over the Burma Road, and now only by air through India.

The availability of personnel was also a serious problem. The Chinese army medical services now have a strength of about 30,000 medical officers, of whom only 7 per cent (roughly 2000) are graduates of medical colleges. The reasons for this state of affairs are quite apparent, but require certain explanations. The total number of all doctors in China (graduates of medical schools) is only about 10,000. This gives an average of one doctor to 40,000-50,000 population as compared to the average for the United States of one doctor to 700-800. Native doctors prescribing herbs are not included in these figures, because they cannot qualify as army doctors anyway.

Many of these doctors are still in occupied territories, and for one reason or another could not move into Free China. Cities like Shanghai, Peiping, Tientsin, Hongkong, Hankow, which have always had the largest numbers of doctors per unit of population, are not by any means even now depleted of their medical practitioners. Probably 40 to 50 per cent of the doctors in China still live and work in the occupied territories.

The Chinese public health services, maintained by the provinces as well as by the central government, together with the faculties of the medical colleges, probably employ 1500 to 2000 doctors. Their jobs are considered to be no less essential than those of the army medical officers.

There are thirty medical schools in the country which, with only one or two exceptions, had to be moved one or more times since the war started. The total enrollment in these schools is not over 3000, and only 400 or 500 doctors graduate each year. Various attempts have been made to enlarge these schools, but lack of equipment and teaching personnel makes expansion difficult. For some of them, being able to continue at all is already considered remarkable.

It is evident from the above that over 90 per cent of our army medical officers are unqualified and are really medical aides and dressers. It is upon their shoulders that the medical care of the wounded and sick in the Chinese armies has to depend. They give first aid treatment and do whatever they can in treating shock and hemorrhage. Their equipment is of the simplest nature, and the supplies and drugs they carry are necessarily limited in variety and in quantity.

Transportation facilities anywhere near the front lines are now entirely lacking. This is a factor necessary for the success of guerrilla fighting, but very unfortunate for the wounded soldier. Moving the wounded to properly equipped hospitals in the rear has now become so difficult that it may take weeks for a comparatively short distance.

There are many field hospitals and operating units, organized under the auspices of the Medical Department of the Ministry of War or by the Medical Relief Corps of the Chinese Red Cross, but the lack of transportation and the long and tortuous nature of the entire fighting front have made it difficult to provide this higher type of service to all combatants. Many of these units have fairly adequate equipment and qualified men to do major surgical work. Their effectiveness naturally depends upon the speed with which the wounded are rushed to them. Unfortunately, however, their operative work consists mainly of incision and drainage of infected wounds, amputations and the treatment of deformities.

There are a few figures available to show the amount of work done by the medical units organized by the Medical Relief Corps of the Chinese Red Cross. Between January, 1938, and June, 1940, the following figures are given:

X-ray examinations	30,300
Operations	35,730
Dressings	3,327,702
Medical treatments	515,073

Since 1940, after three years of fighting, medical conditions have become more important than surgery. Communicable diseases, particularly dysentery and malaria, increased tremendously. Sporadic cases of smallpox, typhoid and cholera appeared, but these diseases were easily controlled by vaccines. Diseases of malnutrition also increased because supplies of food became more difficult on account of lack of transportation or other reasons. The hospitals had far more medical cases than surgical ones. Beri-beri has become much less of a problem since all rice supplied to the armies is now unpolished, but other deficiency diseases, caused by lack or insufficiency of the other vitamins, have been on the increase.

All of this gives a very gloomy picture of the health of the Chinese armies. Like all the other services in our armies, the medical service strives heroically in doing the utmost with the least possible equipment and supplies. The only heart-

ening feature is the toughness of the Chinese soldier. It enables him to bear a great deal of pain, and it is remarkable to see how nature will take care of a lot of conditions, medical as well as surgical. It is a well-known fact that poor surgery under improper conditions can do much damage, and I personally have seen hundreds of bullet or shrapnel wounds heal by first intention without receiving any more care than the application of a simple first-aid packet.

These first-aid packets have been supplied to every soldier ever since the beginning of the war. Their contents have been changed several times. Some had only sterilized cotton or gauze, others had iodine or mercurochrome. It is only in recent months that sulfanilamide powder has been included in some of them.

A great deal of attention has been given to the training of the army medical personnel. Short courses of study are provided for the qualified doctors, medical aides, nurses and other technicians. Too much attention cannot be given to this work, which is being undertaken under the auspices of the Army Medical Administration of the Ministry of War. There is a Central Training Institute at Kweiyang with branches in the different war zones. For the thousands of medical aides who form the bulk of our army medical force, and upon whom the care of the wounded and sick soldier depend, the elements of surgical and medical care, sanitation and preventive medicine are taught in these schools. These courses enable them to give better service when they graduate and return to their army units.

It is perhaps of interest and gratifying to the Assembly of the International College of Surgeons to know that the United States has coöperated in this training program through the American Bureau for Medical Aid to China. Besides giving financial aid to this program, the Bureau has secured supplies and given technical advice of the most valuable nature. The American Red Cross also has helped, especially in sending supplies for the use of the units of this Medical Relief Corps.

To conclude, China's army medical service, like the other services in the army, has to work under tremendous handicaps. After six years of constant fighting, the only contribution it can boast of is its ability to give the best service which it is capable of giving. Many hundreds of army medical men have died in battle, and while they are not in any sense of the word good surgeons, they have given their best and thus have contributed towards winning of the war.

ERRATA NOTE

The Editor regrets that in Dr. Eurico Branco Ribeiro's article entitled "Modification of Sprengel's Incision in Ideal Cholecystectomy" appearing in the July-August, 1943, issue of the Journal, some errors have crept in.

Cholecystectomy should read *cholecystotomy* in the title, on page 399, paragraph 3, line 1 and paragraph 4, line 7; on page 400, paragraph 6, line 1; on page 401, paragraph 3, line 2; on page 402, paragraph 7, line 1 and on the same page, line 2 under Summary.

Figs. 11-12 and 19-20 should be reversed.

CHAPTER NEWS

CHINA

DR. JUI-HENG LIU

Dr. J. Heng Liu

WE are pleased to present a pen-picture of Dr. J. Heng-Liu, who was recently elected a Trustee of the International College of Surgeons.

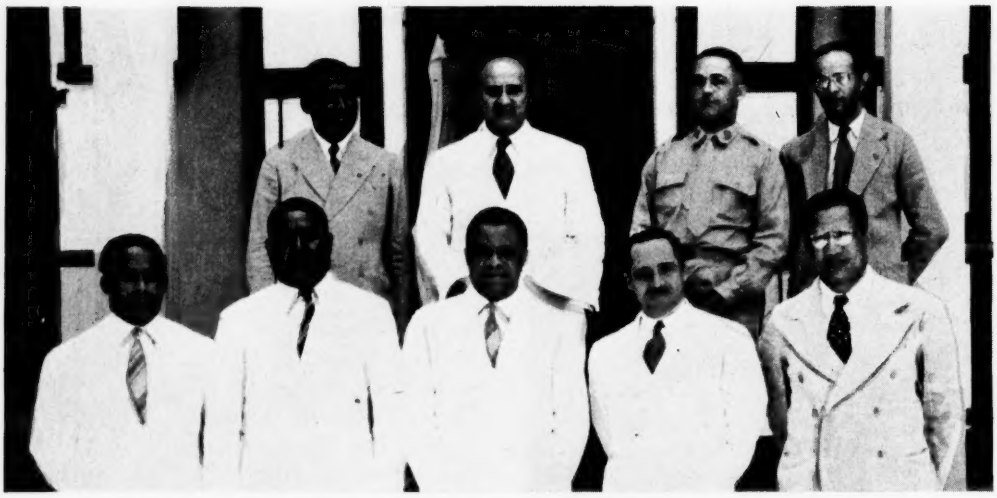
Dr. Liu received his Bachelor's degree from Harvard in 1909, from which he was graduated in 1913. At the present time he is Head of the Department of Medical Supplies, China Defense Supplies, Inc., Washington, D. C. He has been Associate in Surgery, Harvard Medical School of China, Shanghai, Associate Professor of Surgery, Peiping Union Medical College, Minister of Health and Director-General of the National Health Administration, Surgeon-General of the Chinese Army Medical Service, President of the Chinese Medical Association, and Vice-President, Health Committee, League of Nations.

In addition to these activities, he has now become one of the editors of the Chinese Medical Journal, a publication which was suspended for some time because of the exigencies of war conditions and is now emerging in a new format with a splendid editorial staff and a promising future in the interests of medical advancement and dissemination of knowledge pertaining to medicine, not only of interest to the Chinese people, but medical authorities at large. This journal, which has already established a reputation, will be welcome again in circles of medico-literary activity.

Dr. Liu is an idealist who is very much interested in the activities of the International College of Surgeons. His ingratiating personality has attracted to him many admirers.

HAITIAN CHAPTER

THE Haitian Chapter of the International College of Surgeons, organized on Aug. 29, 1942, under the Presidency of Dr. Martial Bourand was represented at the Fourth International Assembly by Drs. Elie S. Villard, V. Noel and Martial Bourand. This delegation, appointed by the President



Haitian Chapter. *At rear*, left to right: Drs. A. Garnier, M. Armand, L. Maximilien, A. Miot. *Front row*, left to right: Drs. L. Roy, C. Valme, Elie Sd. Villard, J. Thebaud, M. Bourand.

of the Haitian Republic to attend the Assembly, brought back an enthusiastic report to the Haitian Chapter.

Particular mention was made of the talks on shock treatment by Commander W. B. Hogan, organization of surgical service in the Soviet Army by Professor Lebedenko, cranial trauma by Dr. R. Rudolph Jaeger, bone reconstruction by Dr. Fred H. Albee, treatment of fractures by Capt. Shaad, circulation in shock cases by Dr. Jablons, treatment of burns by Comdr. Ralph C. Pendleton, heart lesions by Dr. André Crotti, and the effects of trauma on abdominal viscera by Dr. Wm. Seaman Bainbridge.

On the last day of the Assembly, June 16, Dr. Martial Bourand spoke on "Autopyotherapy in General Surgery and Eventually in War Surgery." Present on this occasion were Dr. Desiderio Román, Dr. André Crotti and Dr. Max Thorek, as well as Dr. Rulx Léon, Haitian Consul General at New York and former Director General of the Department of Hygiene and Public Health. Dr. Bourand spoke in French, but copies of his speech in Spanish and English were distributed among the audience.

Dr. Román praised the presentation of Dr. Bourand, stating that it opened new surgical and biologic horizons. Drs. Crotti, Elie S. Villard and Noel also commented favorably.

Dr. Bourand was elected to the Board of Trustees of the International College of Surgeons on this occasion. Before his return to Haiti he made two trips to Philadelphia, where he also spoke at the Pan American Medical Association, at the invitation of Drs. Chevalier Jackson and Desiderio Román.

MEXICAN CHAPTER

MEXICAN CHAPTER CONFERS DIPLOMAS ON NEW MEMBERS, OCT. 25, 1943

THE Mexican Chapter of the International College of Surgeons met on Oct. 25, 1943, at 9 P.M. in the *Salón de Actos* of the Faculty of Medicine of the National University of Mexico on the occasion of the conferring of diplomas on new members. Presiding at the ceremony were Dr. Gonzalo

Dr. Gonzalo Castañeda presiding at meeting of the Mexican Chapter of the International College of Surgeons, Oct. 25. 1943. At his right, Drs. Gustavo Argil, Director of the Faculty of Medicine, Francisco Fonseca, Secretary of the Chapter, and Avelino Gavaldón Salamanca; at his left, Dr. Manuel A. Manzanilla, International Vice-president of the College; at extreme right, Dr. Miguel López Esnaurrízar, National Regent.

Castañeda, F.I.C.S. (Hon.), President of the Chapter and National Regent, in company with Dr. Gustavo Argil, Director of the Faculty of Medicine, who on this occasion received the rank of Fellow Honoris Causa, Dr. Manuel A.

Dr. Manuel A. Manzanilla, International Vice-president of the College, confers the medal and diploma of Fellow Honoris Causa on Dr. Gustavo Argil, Director of the Faculty of Medicine, National University of Mexico. Center, Dr. Gonzalo Castañeda. At right, Dr. Miguel López Esnaurrízar.

Class of 1917-1922 of the National University of Mexico.

Manzanilla, F.I.C.S. (Hon.), International Vice-President and Regent of the Chapter, Dr. Miguel López Esnaurrízar, F.I.C.S. (Hon.), Treasurer and National Regent, and Dr. Francisco Fonseca, National Secretary and Special Regent.

The ceremony was opened by the fine music of the Classical Quartette of the National University of Mexico. Conferring of the degree of Fellow Honoris Causa on Prof. Argil, Director of the Faculty of Medicine, in recognition of his scientific accomplishments and progressive and inspiring work on the Faculty in furthering surgical ideals, especially in the field of teaching, so much stressed by the College, followed. Prof. Manzanilla presented Dr. Argil

Commemorative reunion of the Class of 1917-1922 of the National University of Mexico in the *Salón de Actos* of the Faculty of Medicine, Dr. Gonzalo Castañeda presiding.

with the medal, reminding him that both were members of the University Medical Class of 1917-1922, which had just celebrated its Twentieth Anniversary, and from which the College drew so much cordiality and dynamic spirit of service toward the University, which it gratefully recognized as its Alma Mater.

Professor Argil expressed his satisfaction at having participated in furthering the advancement of the Faculty of Medicine and all the Mexican societies which work for the greatness of medicine and surgery. He referred particularly to the Mexican Chapter of the International College of Surgeons, which had performed so valiantly the task of promoting international scientific exchange with Mexico, under the direction and auspices of the Faculty. He manifested great pleasure at the acquisition of a closer relationship in the College with the beloved teacher, Dr. Castañeda, and his classmates, thanking them for the honor conferred upon him by the College. Dr. Argil spoke of the joy it gave him to have received this honor from Dr. Manzanilla, to whom he was bound by so many ties of recollection and friendship.

Dr. Castañeda spoke of the ideals of the College and the close affiliation between the Faculty and the College, affectionately recalling many of his former students, especially those of the class of 1917-1922, among them several who were then received into the Fellowship of the College, namely: FELLOWS: Dr. P. B. Molina, Dr. Carlos Malabehar Peña, Dr. Roberto O. Romero, Dr. Salvador López Herrera, Dr. José de la Fuente Riveroll, Dr. Alberto Rendón Peón, Dr. Alberto Enríquez Siquieros, Dr. Luis Raúl Flores and Dr. Gustavo A. Uruchurtu; MEMBER: Dr. Raúl Davila G. (promotion); ASSOCIATE MEMBER: Dr. Xavier Romo Díez.

Dr. Gustavo Argil, Director and Member of the Class of 1917-1922 of the National University of Mexico, unveiling commemorative plaque in the Faculty of Medicine.

CELEBRATION OF TWENTY YEARS OF PROFESSIONAL SERVICE

THE celebration of twenty years of professional service of ten outstanding physicians of Mexico City, among them Drs. Manuel A. Manzanilla, F.I.C.S. (Hon.), Miguel López Esnaurrízar, F.I.C.S. (Hon.), and Gustavo Argil, F.I.C.S. (H.C.) was solemnized in the church of Santo Domingo on Oct. 23, at 10:30 A.M.

Other physicians so honored were:

José Perches Franco
Felipe Aceves Zubieta
Roberto Esquerro Peraza
Carlos Malabehar
Francisco del Río Cañeda
Ignacio Vertti Suárez
Adán Velarde Oaxaca

Father Mariano Navarro, O.P., was

celebrant of the mass and *Te Deum* which were the culmination of this auspicious occasion.

The International College of Surgeons extends its wishes for a long continuation of the professional careers of Drs. Manzanilla, Esnaurrízar and Argil, as well as those of their colleagues.

TURKEY

DR. FAHRI AREL, NEW DEAN OF MEDICAL FACULTY OF THE UNIVERSITY OF ISTANBUL

DR. Fahri Arel, F.I.C.S. (Hon.) has been appointed Dean of the Medical Faculty of the University of Istanbul. After training in the Surgical Department of the University of Geneva (Switzerland) and Leipzig (Germany), he became Chief of a Division of Surgery at the Haseki Hospital in Istanbul.

In 1933 he was appointed Instructor of Surgery and in 1940 Associate Professor of Surgery in the First Surgical Clinic of the University of Istanbul.

Fellows of the International College of Surgeons will recall the excellent paper on bone grafting which Dr. Arel read at the Second International Assembly in New York in 1939.

His scientific writings consist of works on orthopedic and gastric surgery. He is the author of a monograph on *Surgical Treatment of Bronchiectasis* and co-author of a Turkish textbook on *Surgical Pathology.*

Dr. Arel is co-editor of the *Archiv* of the Medical Faculty of Istanbul.

It will be recalled that Dr. Arel was closely associated with Prof. Rudolph Nissen, F.I.C.S. (Hon.), while the latter was head of the Department of Surgery at the University of Istanbul (Turkey) after a brilliant career at the Sauerbruch Clinic in Berlin. Dr. Nissen is now following his surgical work in New York. It was through Dr. Nissen's influence that the Turkish Chapter of the International College of Surgeons has been founded, and it was he who disseminated the ideals of the College in European centers of learning.

UNITED STATES CHAPTER

DR. DESIDERIO ROMAN, PRESIDENT OF INTERNATIONAL COLLEGE OF SURGEONS, FETED; FIFTY YEARS OF PROFESSIONAL ACTIVITY

ON January 11 Dr. Román was honored with the following testimonial at a special luncheon given by the Pennsylvania State Medical Society:

"The First Councillor District of the Medical Society of the State of Pennsylvania presents this testimonial to Dr. Desiderio Román in recognition of fifty years of medical service faithfully performed in his community in the traditional ideals of the medical profession."

The occasion was momentous, inspiring and stimulating. We extend our heartiest congratulations to our learned and devoted standard bearer.

BOOK REVIEWS

Chemotherapy of Gonococcic Infections. Russell D. Herrold, B.S., M.D. Associate Professor of Surgery (Urology), College of Medicine, University of Illinois, Chicago, Ill. 137 pp. $3. C. V. Mosby Company, St. Louis, 1943.

IN THIS monograph, Herrold brings up to date the data that have proved valuable in the management of gonococcic infection through the use of chemotherapy, based on a personal experience of some 1800 cases treated within the last two years. The amazing progress that has taken place in this field may be judged by the fact that the author discusses the relative merits of the five day and seven day cure-rates, whereas it seems only yesterday that we thought we were doing wonderfully well if we cured our cases in six to ten weeks without complications.

At present, says the author, there's no place for sulfanilamide in the treatment of gonorrhea. Sulfathiazole is considered the drug of choice, with sulfadiazine a close second. The question of dosage is of primary importance, the aim being to obtain the largest percentage of cures through one short course of treatment with a minimum daily and total dosage. Lack of scrupulous care in the matter of dosage may induce reactions which may be severe enough to terminate fatally.

For new infections, Herrold recommends the administration of 4 gm. daily in four divided doses for a period of five days. If there is a favorable clinical response with no discharge and both urines clear, observe clinically for one week; if there is no clinical activation following chemotherapy, proceed with determination of cure. Greater accuracy and care in microscopic examinations and culture methods are urged in this connection.

The carrier state, following chemotherapy, is fully recognized as being more resistant to activation than such conditions in the pre-sulfonamide era; but more knowledge is needed regarding the mechanism of eventual cure in the carrier type of case. It is possible that the drug produces a decrease in the invasive power of the gonococcus and eventually through the antigonococcic influence of the natural forces of the body, the gonococci are eradicated.

For refractory cases, which resist a second course of treatment, fever therapy combined with sulfathiazole to sulfadiazine, or vice versa, may be effective in some cases.

Further observations are necessary to determine whether sulfadiazine is less likely to sensitize patients than sulfathiazole. Extensive nervousness observed in patients taking sulfadiazine suggests that this drug, like its predecessors, presents certain hazards involving the nervous system, particularly in patients engaged in activities in which their personal safety and that of others are dependent on a normal mental status, such as aviators and others engaged in public or private transportation.

Local treatment is a definite aid in some refractory cases, probably due to the stimulation of the mucous membrane and possibly of its adjacent ducts. In some cases, good results have been obtained by combining sulfathiazole with gonococcic vaccine.

The author stresses the possibility of complications in the urinary tract which may develop during the treatment. The urine should be scrutinized for the presence of crystallization of the drug, microscopic hematuria and albuminuria. This is especially important in patients with marked reduction of kidney function. The various possible complications are considered in detail, all pointing to the fact that while the treatment of gonococcic infection with the sulfa products may be clinically amazing and epoch-making, it nevertheless constitutes a hazard of no mean proportions. Safety demands a daily appraisal of subjective symptoms and a routine examination of all possible objective signs of drug toxicity. Even with the less toxic sulfonamides, there is still a small percentage of patients who are too hypersensitive to the drug to permit an adequate concentration in the tissues for effective clinical results. In these patients other measures must be resorted to.

There are excellent chapters devoted to the determination of cure, infections in women and children, epidemiology and investigative problems; and the book ends with a long series of illustrative case histories which are well worth pondering. There is a fine bibliography.

The volume is a most timely and useful contribution to urologic literature and should be studied by all physicians who undertake to treat gonococcic infections. In the opinion of this reviewer, the hazards of the gonococcic process have been largely eliminated by chemotherapy, but in their stead we have the perhaps greater hazards inherent in the new treatment. The most careful attention to clinical details is necessary if we would take advantage of their clinical effectiveness without incurring the risks of their toxicity. This volume carefully appraises these risks and shows how they can be minimized. The author is to be congratulated on this work—a difficult task well done.

A. L. WOLBARST

Trail to Light: A Biography of Joseph Goldberger. Robert P. Parsons. 353 pp. $3. Bobbs-Merrill Co., Indianapolis, 1943.

JOSEPH Goldberger, internationally known bacteriologist and benefactor of mankind, has been the subject of many works. Joseph Goldberger, the man, has remained in obscurity until Dr. Parsons shed light on his personality, his characteristics and home life in his useful and interesting work on Joseph Goldberger, the man, the friend, the investigator and the scientist.

The author devoted much time to the study of Goldberger's life, collected information from authoritative sources such as Goldberger's wife, relatives and associates in the National institute of Health. During the influenza epidemic of 1918 he met Goldberger in person. Dr. Parsons has skillfully portrayed Goldberger in his private and social life, related hitherto unknown facts of his life and included a number of letters which reveal Goldberger's personality.

On pages 337-344 appears a complete biography of the works of Dr. Goldberger. Dr. Solomon R. Kagan,

the historian, had already published the same biography of Dr. Goldberger in *Medical Life*, September 1933, pages 440-445.

Its excellent style and logical arrangement make this a valuable addition to biographical literature. The book is printed on good quality paper and beautifully bound. It deserves a place in the library of both physician and layman.

S. R. KAGAN.

The Story of Medicine. Victor Robinson, M.D. 564 pp. The New Home Library, New York, 1943.

DR. ROBINSON is a veteran medical historian who did pioneer work in the popularization of the history of medicine by correlating medical progress with economic, artistic and philosophic conditions that obtained in each period, and also by introducing the element of humor and wit into his writings.

This comprehensive book, *The Story of Medicine*, covers many important epochs in the development of medicine. It presents masterly descriptions of medicine in the Stone Age, in Ancient Egypt, in Ancient Greece, Greek medicine in Alexandria and Rome, Arabian medicine, European medicine in the Middle Ages, medicine in the Renaissance, in the seventeenth and eighteenth centuries, modernization of medicine, medicine in America, especially in its sociologic aspects. The volume supplies an accurate history of medicine of the people the world over from the Stone Age to the present time.

Written in a vivid style, this book is recommended as pleasant and instructive reading to professional and layman.

S. R. KAGAN.

Pioneers of Pediatrics. Abraham Levinson, B.S., M.D., Assistant Professor of Pediatrics, Northwestern University Medical School; Professor Pediatrics, Cook County Graduate School of Medicine; with foreword by I. A. Abt. Ed. 2. $2. Froben Press, New York, 1943.

THE author has presented in this volume a vast amount of interesting and instructive material on the medical achievement of the pioneers in pediatrics, all the way from the Greco-Roman period (the fourth century B.C.) to the present time. The author followed the rule of *multum in parvo*, and described the main work of a great number of medical men who directly advanced the knowledge of pediatrics or paved the way for the development of child hygiene.

Dr. Levinson, being a noted pediatrician and medical historian, has succeeded in giving a clear picture of the pioneer work done in the field of pediatrics by representatives of the medical profession the world over, including Americans. The presentation of pioneer work in pediatrics usually requires voluminous books, but the author skillfully selected the most important ones and gave a bird's eye view of the advancement in this field by pediatricians as well as other scientists. He has selected many of the original descriptions of disease and gave them in condensed form, which constitutes a valuable addition to the book.

Of great interest are also the twenty-nine illustrations given in this remarkable volume. A bibliography of source material dealing with the history of pediatrics is also included at the end of the book, which affords the student who wants to dig further into the history of pediatrics an opportunity to broaden his knowledge.

The book is a real contribution to the history of medicine in general and to the history of pediatrics in particular.

S. R. KAGAN.

History of Surgery. Richard A. Leonardo, M.D., Ch. M., F.I.C.S. 600 pp., 100 pl. $7.50. Froben Press, New York, 1943.

THIS comprehensive history of the development of surgery through the ages on all continents reveals extensive research by Leonardo. Contributions from allied physical and biological sciences and arts are included in the 56-page bibliography, many of whose references are not found in the Quarterly Cumulative Index Medicus.

The discussion of Hindu surgery discloses that the Hindus practiced preoperative preparation by diet in abdominal operations, as well as the use of anesthesia. Insensibility was produced by wine, Indian hemp and a drug called Samohini. Application of forceps in difficult labor, craniotomy and Cesarian section were known to the Hindus.

Early Japanese surgery was largely copied from Chinese practices. During the Heian period, 784-1186 A.D., incisions of abcesses, cauterization of ulcers and dog bites, abdominal surgery, suturing of intestinal wounds with threads from the bark of the mulberry tree and operative treatment for atresia of the vagina were known.

Erasistra, Celsus, Galen, Oribassius, Paul, Paracelsus, Vesalius and Avicenna are all properly listed as early surgeons, a classification occasionally lost from view.

Some omissions should be noted: p. 371, the Badianus Manuscript, 1552, translated by Emily Emmart in 1940; p. 332, the Leeuwenhoek Letter of 1676; p. 442, performance of suprapubic cystotomy in 1556 by Pierre Franco and perineal prostatectomy in 1639 by Covillard; p. 442, successful use of the intraurethral method of enucleation of the hypertrophied lobes by Paré in 1575, Civial in 1603, La Faye in 1726, Mercier in 1836, Guthrie in 1834, and the electro-cautery incision by Young in 1902.

An exhaustive discussion of the surgical specialties with a section on surgical societies and specialty Boards stresses coöperation in the development of surgery by the American College of Surgeons, the American Board of Surgery and the International College of Surgeons.

This amply and well-illustrated book could only be written by a surgeon, scholar and bibliophile. It should be placed on the library shelf alongside of Billings. The author and publisher are to be congratulated for producing a work of merit during the War.

W. J. CARSON.

Medical Clinics of North America. New York number, Vol. 27, No. 3, May, 1943. Symposium on Infectious and Tropical Diseases. W. B. Saunders Co., Philadelphia.

THIS symposium on infectious and tropical diseases is a compilation of 20 monographs by authorities in New York and vicinity. They cover various diseases which are appearing in the United States following our participation in a global war. As a larger military personnel is sent to the tropics, the

necessity for becoming thoroughly acquainted with the characteristics of these diseases is paramount not only for the physician in the medical corps, but also to the one who remains at home. Therefore the appearance of this number of the Medical Clinics is timely. M. T.

A Short Practice of Surgery. Hamilton Bailey, F.R.C.S.. Surgeon, Royal Northern Hospital, London, and R. J. McNeill Love, M.S., F.R.C.S., Surgeon, Royal Northern and Metropolitan Hospitals. Ed. 6. 1033 pp., 922 illus. 36s. H. K. Lewis & Co., Ltd., London, 1943.

THE latest edition of this classical work will be welcomed by all surgeons. This work has been brought up to date in every respect.

World War II has brought about changes in therapy and in individual interpretation which are embodied in this work in a masterly manner. The book is replete with informative material.

Special attention is given to injuries to the nervous mechanisms. The nature of the authors' contributions to continental surgical practice is well known in the United States. It is remarkable how much they have included in so limited a space.

The printing and paper harmonize with the exceptionally fine context of the book.

M. T.

Dental Vocabulary. English-Spanish, Spanish-English. Joseph S. F. Marie. 159 pp., 3 illus. $4. Jacques Cattell Press, Lancaster, Pa., 1943.

THIS practical vocabulary of dentistry which embraces also a limited number of medical terms, fills a long-felt need. In the foreword, Dr. L. S. Rowe, Director-General of the Pan American Union, states its importance "in fostering closer relations between the members of the dental profession in different sections of the Western Hemisphere."

This painstakingly prepared volume provides clear, intelligible translations of difficult scientific terms. A few errors in medical terminology show that proof might have been more carefully read; for instance, Graves' disease is erroneously listed as "Grave's disease."

The inclusion of common prefixes and suffixes is a valuable means of increasing the vocabulary. The single-word translations used in most cases make the volume a time-saving reference work. Listing of numerous *genera* of a word is particularly helpful, *i.e.*, 32 kinds of acid appear beneath the word in the Spanish-English section, 29 in the English-Spanish section. Fifty-four phrases containing the word *diente* are given in the Spanish-English section.

Three illustrations of the mouth and teeth, with legends in both English and Spanish, are helpful.

M. T.

Essentials of Gynecology. Willard R. Cooke, M.D., Professor and Head of the Department of Obstetrics and Gynecology, University of Texas. 475 pp., 197 illus. $6.50. J. B. Lippincott Co., Philadelphia, 1943.

AS THE name implies, the text has adhered mainly to the practical exhibit of the essentials of gynecology; very little time is wasted on theoretical arguments. Anatomy, microscopic pathology, symptomatology and therapy of gynecology are ably presented.

Chapter I, dealing with Anatomy, presents the excellent drawings of Pahma and Amreicht, which are difficult to improve upon. The line drawings, although they do emphasize the point under discussion, are very sketchy. The book is enhanced by actual photographs of pathologic specimens.

Chapter XVII, which deals with pre- and postoperative cases, has been very well handled.

The more commonly useful operations are presented in Chapter XVIII in step-by-step order. It is unfortunate that simple sketches do not accompany these steps.

The reading matter is very well presented. On controversial subjects the author always gives other viewpoints than his own. This fine book should be useful to student and practitioner alike.

P. T.

Correction. The editors express regret that the names of Dr. Gunnar Jelstrup, F.I.C.S., Denver, Colorado, and Dr. Joseph Paul Alvich, F.I.C.S., Bronx, New York, have been inadvertently left out by the printer on the roster of United States Chapter members in the *Proceedings* of the International College of Surgeons of the Third International Assembly held in Mexico City.

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Argentina

Boletín del Instituto de Medicina Experimental (Buenos Aires) Año XX, No. 61, April, 1943.

Boletines de la Sociedad de Cirugía de Rosario (Rosario) Año X, No. 4, July, 1943.

La Revista de Medicina y Ciencias Afines (Buenos Aires) Año V, Tomo 9, No. 53, Sept., 1943.

Revista de Medicina Cancerología (Buenos Aires) Año XVII, No. 165, 1943.

Revista de la Sanidad Militar (Buenos Aires) Año XLII, Nos. 8 and 9, Aug. and Sept., 1943.

Revista Oto-Neuro Oftalmológica y de Cirugía Neurológica Sud-Americana (Buenos Aires) Tomo XVIII, Nos. 7-8, July-Aug., 1943.

Sulfanilamidoterapia Local. Juan Nasio. Editorial Aniceto López, Buenos Aires, 1942.

Bolivia

Gaceta Médico-Quirúrgica de Bolivia (La Paz) Vol, 1, No. 2, Aug., 1943.

Revista de la Sanidad Militar (La Paz) No. 12-13, 1943.

Brazil

Brasil-Médico (Rio de Janeiro) Año LVII, Nos. 36, 37, 38 and 39, Sept., 1943.

Gazeta Clínica (São Paulo) Año XLI, Nos. 4 and 7, Apr. and July, 1943.

O Hospital (Rio de Janeiro) Vol. 24, No. 3, Sept., 1943.

Revista Brasileira de Ortopedia e Traumatología (Rio de Janeiro) Vol. IV, No. 4, July-Aug., 1943.

Revista Medico-Cirurgica do Brazil (Rio de Janeiro) Año LI, Nos. 4, 5 and 6, Apr., May and June, 1943.

Chile

Medicina Moderna (Valparaiso) Año 17, No. 1, Aug., 1943.

Revista Chilena de Higiene y Medicina Preventiva (Santiago de Chile) Vol. V, No. 4, Mar., 1943.

Colombia

Medicina y Cirugía (Botogá) Vol. VIII, No. 2, Oct., 1943.

Revista de la Cruz Rojo Colombiana (Botogá) Vol. XVI, No. 182, Sept., 1943.

Cuba

El Nuevo Hospital (Havana) Año II, Nos. 9 and 10, Sept. and Oct., 1943.

Revista Médica Cubana (Havana) Tomo LIV, No. 9, Sept., 1943.

Vida Nueva (Havana) Año XVII, Tomo LII, Nos. 1 and 2, July and Aug., 1943.

Villaclara Médica (Santa Clara) Vol. XI, Nos. 5 and 6, Sept.-Oct., Nov.-Dec., 1943.

Ecuador

Bioestadística en el Cosmos Ecuatoriano. Dr. Juan José Samaniego. Quito, 1943.

Prevision Social (Quito) No. 12, Jan.-Apr., 1943.

England

Proceedings of the Royal Society of Medicine (London) Vol. XXXVI, No. 12, Oct., 1943.

Mexico

Asistencia (Mexico, D. F.) Tomo VIII, No. 25, Sept., 1943.

Boletín de la Sociedad Mutualista Médico-Farmacéutica de Guadalajara (Guadalajara) Tomo XV, Nos. 6, 7 and 8, June, July and Aug., 1943.

Gaceta Médica (Villahermosa) Año V, No. 58, Oct., 1943.

Revista de Cirugía (Mexico, D. F.) Vol. XV, No. 5, Sept., 1943.

Revista del Instituto de Salubridad y Enfermedades Tropicales (Mexico, D. F.) Vol. IV, No. 3, Sept., 1943.

Revista Médica (Puebla) Tomo XVI, No. 161, Nov., 1943.

Revista Médica Veracruzana (Vera Cruz) Tomo XXIII, Nos. 11 and 12, Nov. and Dec., 1943.

Revista Mexicana de Cirugía, Ginecología (Mexico, D. F.) Año XI, No. 7, July, 1943.

Sugestiones (Mexico, D. F.) Año IX, No. 99, Nov., 1943.

Palestine

The Palestine and Near East Medical Journal (Jerusalem) Vol. II, No. 4, Aug.-Sept., 1943.

Puerto Rico

Boletín de la Asociación Médica de Puerto Rico (San Juan) Año XXXV, No. 11, Nov., 1943.

Union of Soviet Socialist Republics

Chirurgia (Moscow) No. 5-6, 1943.

Comptes Rendus (Doklady) de l'Académie des Sciences de l'USSR (Moscow) Vol. XXXVIII, No. 9 and Vol. XXXIX, No. 1, 1943.

Sovetskaya Medicina (Moscow) No. 5-6, 1943.

Voenno-Sanitarboe Delo (Moscow) Vol. 5-6, 1943.

United States

American Review of Soviet Medicine (New York) Dec., 1943.

Boletín de la Oficina Sanitaria Panamericana (Washington, D. C.) Vol. 22, No. 9, Sept., 1943.

Chinese Medical Journal (Washington, D. C.) Vol. 61, No. 2, Apr.-June, 1943.

The Puerto Rico Journal of Public Health and Tropical Medicine (New York) Vol. 19, No. 1, Sept., 1943.

Venezuela

Revista de la Sociedad Médico-Quirúrgica del Zulia (Maracaibo) Año XVII, Nos. 5 and 6, May and June, 1943.